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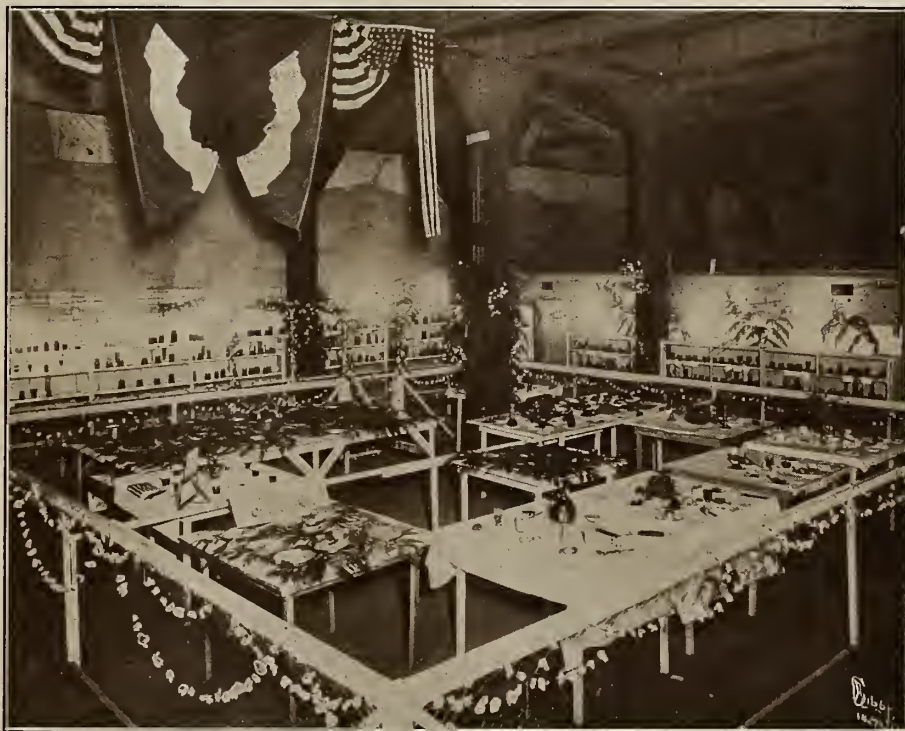
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BETTER FRUIT

VOLUME XII

JANUARY, 1918

NUMBER 7



HOOVER DINNERS AT NATIONAL APPLE SHOW, SPOKANE, NOVEMBER 19-24, 1917.

A most interesting feature of the Women's Department at the Tenth National Apple Show.

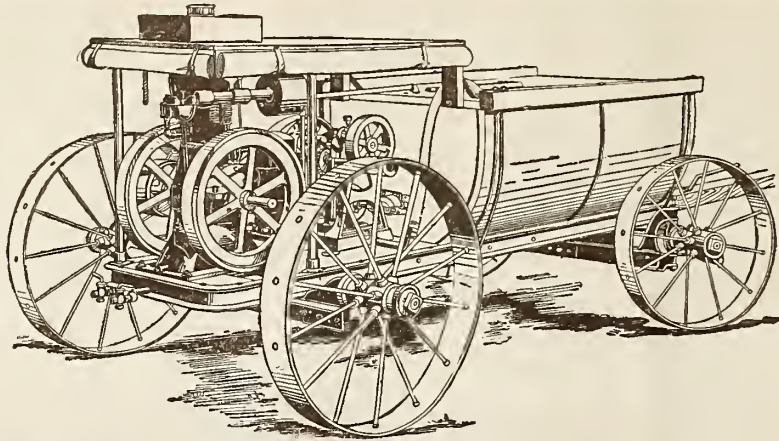
Every contestant was requested to serve an entire meal in which apple products were featured and Hoover conservation emphasized.

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

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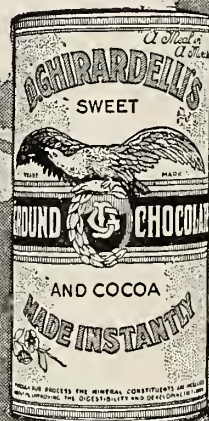
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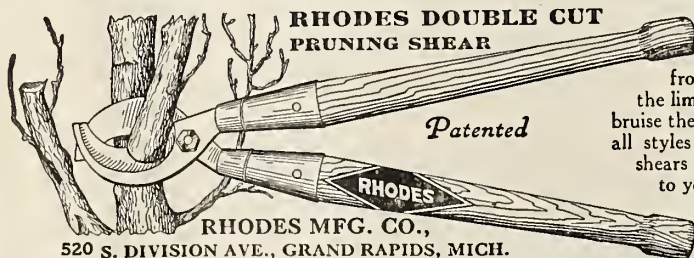


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TOPPENISH, WASHINGTON

BETTER FRUIT

AN ILLUSTRATED MAGAZINE PUBLISHED MONTHLY IN THE INTEREST OF MODERN, PROGRESSIVE FRUIT GROWING AND MARKETING

Food Value of Fruits

Address by E. S. Gill, Secretary Seattle Produce Association, Before the Seattle Rotary Club, December 5, 1917

IF this great war accomplishes nothing else of benefit for America, it will almost be worth its cost in what it is doing in teaching the people thrift. Americans have been known for years as the most extravagant people on earth and in no way is this extravagance more noted than in their waste of food. In any other nation, the American garbage can would have been a great source of wealth. Happily, we are beginning a reformation in our mode of living and are realizing that the words, Economy, Thrift and Industry have a very prominent place in our vocabulary. We have been a nation of meat eaters, eating more meat than any other people, with the result that we have been more subject to stomach and intestinal troubles and other diseases that are readily preventible than any other nation.

The Russian-Japanese war was a revelation to the world as to what people could do whose main sustenance consisted of a vegetable diet. Assisted by their splendid medical service, the Japanese suffered a less loss from sickness and disease during that war than any other nation had ever experienced in war in the history of the world. Their soldiers were free from disease and taints in the blood and could withstand hardships, exposures and strain as no other men had ever been able to do before.

With the necessity for practicing economy in our consumption of food in this country in order to furnish supplies to our Allies, people now realize that they can do with less meat than they have been accustomed to in the past. They are slowly learning to substitute fruits and vegetables for the meat and wheat diet. But scarcely any of us have gone as far in this direction as we should and ultimately will go. People do not eat as much fruits and vegetables as they should. In the war scare of one year ago, aided by short crops in many of the staples, prices went skyrocketing until people almost ceased using such staples as potatoes and onions, but there is no excuse for such action now with the moderate prices prevailing.

The human body is made up of millions of small cells, somewhat as the honeycomb is made up of great numbers of cells. The cells in the body are so very small that they cannot be seen without a powerful microscope, but each of these microscopic cells must be strong, if the whole body is to be a strong, healthy body.

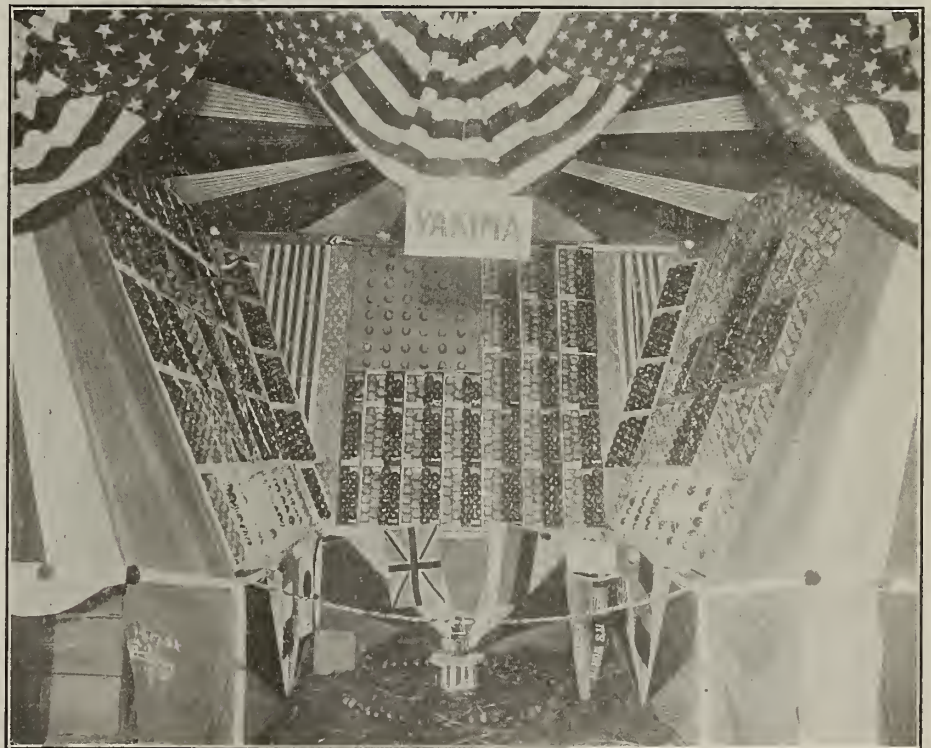
The American people have been especially neglectful in the use of fruit. Of course, while we were a pioneer nation

and the majority of our population were living upon the farm, engaged in pioneer work, they required a strong, heavy diet, but now that the conditions have changed, we have been slow to change our methods of eating and to adapt ourselves to the use of foods that are more applicable to the occupations in which we are now engaged. King of all the fruits is the apple. You are all familiar with the old saying, "An apple a day keeps the doctor away," and I want to tell you that I know from experience there is very much truth in this old saying. If people would eat apples, not simply one a day, but two or three or four a day, they would be very much healthier than they are and would not feel the need of so much of the heavier foods. The apple is a tonic as well as a nutrient. There have been many mystic traditions about the apple, which has been credited with varied potency. It is the healing fruit of the Arabian tales. Latin chronicles and institutes and early English poems contain many reference to it. Scientific analysis of late years has justified all the ancient glorifications of this fruit, which has been found to contain albumen, sugar, gum, malic acid, gallic acid, fiber, water and phosphorus.

Malic acid of apples neutralizes the excess of chalky matter caused by too much meat and thereby helps to keep us young. Apples are good for the complexion, as their acids drive out the noxious matters which cause skin eruptions. They are good for the brain, which those same noxious matters, if retained, render sluggish. The acids of the apple diminish the acidity of the stomach that comes with some forms of indigestion.

Apples should be used very freely, far more so than they are today. There is no cheaper food on the market than apples at the prevailing prices. Good cooking apples can be had at from 2½ to 3 cents a pound, while the best quality of eating apples can be had at 5 to 6 cents a pound, these being retail prices; at 3 cents a pound, apples cost but 1 cent per 100 calories, or 2 cents per 100 calories for the best variety of eating apples at 6 cents per pound, or 1.6 cents for the high quality apples at 5 cents per pound and the good old apple pie at 25 cents per pound costs but 2 cents per 100 calories.

Other fruits in the market at the present time, such as bananas, grapes and oranges cost more, but even these are not high priced considering their



District Display Prize Winner.

Yakima Valley's district display at Tenth National Apple Show, Spokane, November 19-24, 1917. Various commercial packs were shown and all of the fruit on display scored unusually high.



Operating Packing House at Apple Show.

A complete apple packing house was in full operation at the Tenth National Apple Show in Spokane, November 19-24, 1917. The fruit was brought into the warehouse from several orchards and handled completely in the building before the spectators and turned out in commercial pack.

food value. Bananas at $7\frac{1}{2}$ cents per pound cost 1.7 cents per 100 calories, and grapes at 20 cents a pound cost but 4.6 cents per 100 calories, less than the cost of round steak. Oranges cost 4.3 cents per 100 calories.

There is no reason why there should be so many oranges consumed in the City of Seattle or in the State of Washington when it is remembered that we produce the finest apples in the world, and that the apple possesses more than double the food value and tonic value of the orange. Instead of serving an orange on your breakfast table, serve an apple and help home industry as well as helping your stomach for its day's work. Eat another apple at night before you go to bed. It is the best thing you can do. Leave out the cake and the sweets and the coffee. Take an apple and a glass of water.

Even dried apples are not to be despised. I can remember when the average farm wife in the Middle West dried her own apples in the fall, and the family were very glad to have mother's dried-apple pie along in the late spring and early summer, and dried apples at 20 cents a pound, the present retail price in Seattle, cost 1.5 cents per 100 calories. Dried apricots at 25 cents a pound only cost 2 cents per 100 calories; prunes at $17\frac{1}{2}$ cents per pound cost but 1.3 cents and raisins at 15 cents a pound cost but 1 cent for 100 calories, and that brings me to pointing out the value of nuts and fruits in your daily diet. Such nuts as peanuts, Brazil nuts, pecans, almonds, walnuts, hickory nuts, take the place of meat better than any other foods, not excepting beans, which hitherto have been the best-known substitute for meat. Have you ever been out on a hunting or fishing trip and noticed how well satisfied you felt after eating a few nuts to assuage your hunger. They contain the fats the body needs, in a condensed form, and even at the present prices, they are cheaper

than meats. Soft-shelled walnuts at 30 cents a pound cost but 2 cents per 100 calories and almonds at 25 cents per pound cost but 1.6 cents per 100 calories, while the humble peanut at $12\frac{1}{2}$ cents per pound cost but .75 cent per 100 calories. Nuts and raisins make as fine a lunch as anyone could ask for because they possess all the nutritive elements of wheat and meats and fats combined.

Even canned fruits and canned vegetables are as cheap and in many cases cheaper than meats, particularly such vegetables as canned beans, corn, sweet potatoes and peas. Don't be afraid to use the humble prune either, and in so doing you are not only using a useful and healthful fruit, but helping a home

industry. Cherries in season are another fruit that should be used freely, even at the current prices of the last two years. Pears are next to the apple in their food value in proportion to prices. They should not only be used freely while fresh, but every family should can plenty of them in season.

I hope I have not made this talk too technical. What I wanted to accomplish is to impress upon you the value of a fruit and vegetable diet; not only of its value as to health, but in its economical value from the pocket-book side. But above all else, I would say to you now, of the vegetables eat more potatoes, more carrots, more parsnips, more spinach, more celery than you have been in the habit of doing, and above all and everything else, eat more apples, then still more apples and you will be healthier, wealthier, wiser and more efficient mentally and physically in the future than you are today.

Jams, Jellies and Preserves.

Possibly the price of butter has already suggested the use of jams, jellies and preserves in larger quantities than usual. But aside from the saving in cost, there is a national service as well. Butter is readily transported and exported, whereas these other products, which are usually put up in glass jars, lend themselves best to home or local consumption. Eat as much as possible of the home-grown products, thus releasing foods which naturally flow in large commercial channels for shipment abroad. This policy has the endorsement of the United States Food Administration and is essentially sound. Jams, jellies and preserves do not have the same kind of nutriment as butter and are not a substitute, but the judgment of the American housewife and mother is sufficient safeguard against an excessive reduction of butter consumption.

California Deciduous Fruit Shipments

[From the Packer]

It now appears perfectly safe to place an estimate of \$35,000,000 on the deciduous fruit crop of California for 1917, shipped in the fresh state to markets outside of the state. Already the carload shipments have passed 23,000 carloads, which is 3,000 carloads above early estimates.

It is figured roughly by local fruit men that these carloads of fruit should be placed at a value of \$1,500 each. The figure is not large for this season, though a definite check would require an enormous amount of bookkeeping,

for prices have been by far the best on record. A figure of \$1,300 a car was taken as a basis for the figures of last season, the total of which was some \$12,000,000 below that of this year.

A truly marvelous growth has taken place in the deciduous industry. For the sake of the comparison, the shipments for five years are given herewith. It must be remembered in glancing over this table that the 1917 season is not yet through. If rain holds off long enough it may be possible to ship 1,000 carloads of grapes yet. The table follows:

	Cherries	Apricots	Peaches
1913	231	158	2,359
1914	166	382	2,144
1915	205	392	1,689
1916	164	290	1,909
1917	295	403	2,431

The following is a comparative statement of the deciduous fruit movement from the state, issued by Charles E.

	Cherries	Apricots	Peaches
1917	295	403	2,430 $\frac{1}{2}$
1916	164	289 $\frac{1}{2}$	1,909 $\frac{1}{2}$

Pears	Plums	Grapes	Misc.	Totals
2,496	1,706	6,363	19	13,332
2,725	1,907	8,773	49	16,116
2,646	2,225	9,563	58	16,778
3,701	1,999	9,722	107	17,891
4,766	2,651	12,349 $\frac{1}{2}$	47	22,954

Viriden, general manager of the California Fruit Distributors, for the season up to and including November 10:

Pears	Plums	Grapes	Misc.	Totals
4,768 $\frac{1}{2}$	2,650 $\frac{3}{4}$	12,600	61	23,209
3,699 $\frac{1}{4}$	1,998 $\frac{1}{2}$	9,331 $\frac{1}{4}$	101 $\frac{1}{4}$	17,493 $\frac{3}{4}$

Tenth National Apple Show, Spokane, Washington

By Ren H. Rice, Publicity Secretary, Spokane Chamber of Commerce

TWO big outstanding features marked the Tenth National Apple Show held in Spokane, November 19 to 24, 1917. Patriotism was the dominant note throughout all the plans for entertaining the big crowds, in the decorations and in the speeches delivered at the growers' conferences. Practical instruction for grower, shipper and user of fruit, along the latest lines, was the other big feature.

The show was a success in every way. In spite of the fact that nearly every section of the Northwest had a reduced crop; in spite of the fact that campaign after campaign had been carried on in Spokane for various war and civic purposes; in spite of the fact the show was held at a time when attention was universally focused on the war, still the apple show drew an attendance of 46,000 in six days.

So successful was the show from every standpoint that it is now regarded as certain that the big annual exposition will be continued from year to year without even a thought of its abandonment.

An example of the close competition is illustrated in the pictures shown in BETTER FRUIT of the exhibits made by the Yakima district and the Deer Park district. On quality, commercial value, pack and attractive arrangement, the judges were puzzled between the two exhibits. Eventually the prize was given to Yakima on the narrowest of margins, the second award, of course, going to Deer Park, with the frank admission by the judges that it was a hair-line decision.

The Yakima Commercial Club consequently carried home the gold medal banner and a check for \$125, and the Deer Park Commercial Club rooms are adorned with a silver medal banner and the treasury is enriched \$75.

In the feature displays wherein organizations were competing on uniqueness of design, originality of conception and attractiveness of display, the Hamilton Chamber of Commerce carried off \$125 and the gold medal banner for its exhibition of a Ferris wheel. The wheel was eighteen feet in diameter with the radiating spokes in alternate red and blue colors and each of the sixteen cars consisted of a box of McIntosh Red apples from the Bitter Root Valley, Montana. The wheel was constantly in revolution. The judges' award met universal approval, although the Walla Walla Commercial Club's flag, composed of apples, and the Spokane Valley growers' display in the shape of a Washington monument, were close contenders. The latter two were awarded second and third prizes, respectively.

The Upper Columbia Company of Marble, Washington, took first honors in the apple shippers' brand contest; the Arcadia Valley Fruit Growers' Association of Deer Park, Washington, won second; and the Entiat Fruit Growers' League of Entiat, Washing-

ton, won third. This contest was limited to bona fide shippers of apples, whose showing of brands were judged upon their effectiveness as worked out through the use of fruit. Each entry was required to be not less than 75 and not more than 100 boxes, with the addition of 30 boxes allowed for decorative purposes. This was another contest in which the judges grew a few more gray hairs in making their awards.

In the straight commercial exhibits by individuals the sharpest rivalry centered over the championship of \$50 in gold for the highest scoring box of apples and the \$100 gold champion for the highest scoring five boxes.

In the single-box classes 22 varieties were allowed, each one competing only against other entries of the same variety. H. S. Bugdell of Yakima won the single-box championship, scoring 95.7 on his box of Arkansas Blacks, which, of course, was also first-prize winner in the regular single-box Arkansas Black contest.

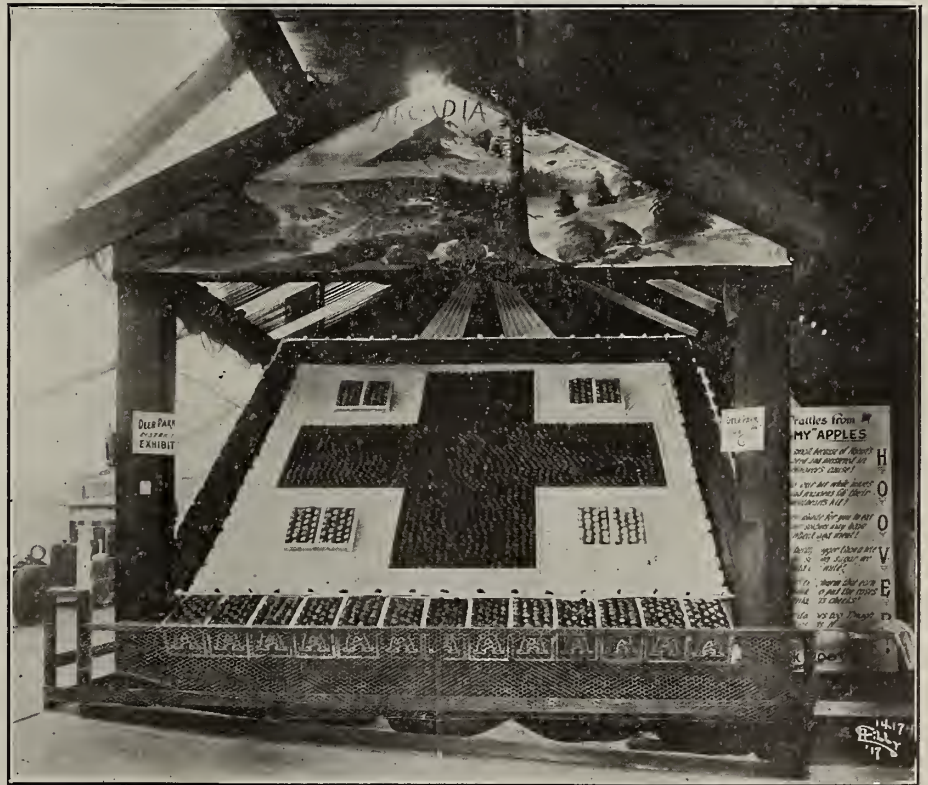
H. Van Marter of Opportunity, Washington, captured the \$100 championship in the five-box contest. By an unusual coincidence this contest was also won on Arkansas Blacks, Mr. Van Marter's entry scoring 95.9. This entry also won the first prize of \$25 in its class.

The exhibitor making the greatest number of entries in all classes was offered an "Exhibitor's Sweepstakes" of \$25. The same amount was also offered to the exhibitor who won prizes

in the one, three and five-box classes. A. L. Smith of Brewster, Washington, went home with both prizes in his pocket. He came to the show with all kinds of exhibits and announced his intention of giving every one a close run. He kept his word. He won first prize on five-box display of Spitzenbergs, Jonathans and Winesaps; first on three-box showings of Mammoth Black Twig and Spitzenberg; first on one-box displays of Grimes Golden, Mammoth Black Twig, Winter Banana and Winesap, and just to fatten up his average a little he grabbed second and third prizes in several other contests.

Unusual attention was attracted to the women's department this year, because in this was given the most practical lessons on food conservation, both from the standpoint of necessity to the nation during the war period and for general health and economical purposes at all times. Federal Food Administrator Herbert Hoover had given special approval of the plans for food conservation demonstrations and had made a number of suggestions which were faithfully carried out. He laid special emphasis on the value of contests in the home-made by-products classes, with particular emphasis on the desirability of illustrating the making of apple butter, apple syrup and apple cake.

The "Hoover Special Dinner" attracted more attention than any feature given of the women's department at



Huge Red Cross in Apples.

The Deer Park Commercial Club, of Deer Park, Washington, had a most effective display at the Tenth National Apple Show in Spokane. An enormous red cross was shown against a white field. In addition the display consisted of a quantity of apples from the Arcadia section at Deer Park, featuring the Big "A" brand.

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any previous shows. This dinner was required to be a complete, well-balanced meal for one person, composed of from five to ten dishes, all made wholly or in part from apples and all carrying out the Hoover idea of food conservation. Each contestant was required to bring in everything pertaining to her entry, including cloth, dishes, silverware, food and all table appointments. The judging was done upon food value, palatability, attractiveness

	Proteins	Fats	Carbonates	Calories	Cost
Cocktail	4.0	3.0	118.0	125.0	.021
Soup	12.0	19.0	68.0	99.0	.006
Bean Loaf	96.0	189.0	112.0	397.0	.04
Potato	16.0	9.0	111.0	130.0	.006
Onion Patties	9.0	11.0	57.0	77.0	.01
Cabbage and Apple	6.6	20.6	52.0	79.6	.006
Rye and Cornmeal Muffins	21.0	25.0	186.0	232.0	.013
Apple Fluff	31.0	45.0	95.0	153.0	.02
Apple Salad	26.0	118.5	93.0	257.5	.04
Cookies	20.0	107.0	140.0	267.0	.01
Cider .....	...	...	119.0	119.0	.02
Butter	0.5	99.0	...	100.0	.02
Rye Crisps	4.0	8.0	34.0	46.0	.005
Totals	222.0	674.0	1185.0	2081.0	.217

and economy. So extensive was the competition that it was necessary to set aside a special division, and this division was added to from time to time, crowding other displays into the background. As one of the judges said, "It makes a man ravenous to look at those dinners."

This contest was another poser for the judges. The decision finally went

to Mrs. A. C. Dukelow, N. 2209 Perry Street, Spokane, who carried away \$50 in gold with first honors. In making up the dinners contestants were allowed such combinations as apple butter served with muffins, counting as one dish, or cookies served with apple fluff, counting as another. The complete meal as prepared by Mrs. Dukelow cost less than 22 cents per person served. Her menu and its scoring record follows:

	Proteins	Fats	Carbonates	Calories	Cost
Cocktail	4.0	3.0	118.0	125.0	.021
Soup	12.0	19.0	68.0	99.0	.006
Bean Loaf	96.0	189.0	112.0	397.0	.04
Potato	16.0	9.0	111.0	130.0	.006
Onion Patties	9.0	11.0	57.0	77.0	.01
Cabbage and Apple	6.6	20.6	52.0	79.6	.006
Rye and Cornmeal Muffins	21.0	25.0	186.0	232.0	.013
Apple Fluff	31.0	45.0	95.0	153.0	.02
Apple Salad	26.0	118.5	93.0	257.5	.04
Cookies	20.0	107.0	140.0	267.0	.01
Cider .....	...	...	119.0	119.0	.02
Butter	0.5	99.0	...	100.0	.02
Rye Crisps	4.0	8.0	34.0	46.0	.005
Totals	222.0	674.0	1185.0	2081.0	.217

Other exhibits in the food-conservation classes embraced 33 separate by-products, ranging from apple mamalade to apple jelly. Liberty bread was in demonstration, also economical apple pies and another Hoover special showing products made strictly from cores and skins of apples.

At stated hours through the day practical demonstrations in economical

cooking were given in a lecture room adjoining the women's department. These lectures and demonstrations were given by representatives of the Washington State College faculty and of the United States Board of Food Economy.

A new and highly appreciated educational feature was the showing of an accounting department run in connection with the daily demonstrations of a packing house. The accounting department was under the supervision of the Bureau of Markets of the United States Department of Agriculture, which has become so impressed with the value of going direct to the fruit men that instructions were given to put in a complete office demonstration at the apple show.

J. H. Conn, assistant in market business practice, was assigned to the management of the office as a special representative from Washington. He had a trained staff at his disposal, provided with every modern equipment required to illustrate the proper accounting systems in fruit handling. The demonstration was run in connection with the operating packing house. The apples were checked in when they entered the warehouse and followed throughout all of their handling up to the time they were billed out to the Spokane Growers' Company, which concern bought all the fruit used in the packing house.

Mr. Conn and his assistants went into complete detail showing how each and every item of cost should be properly entered and explaining the value of modern equipment and up-to-date methods as applied to every branch of the fruit industry. The booth was crowded all the time during the show and expressions of approval were heard on all sides. It is probable that the Department of Agriculture will install a similar feature at each of the future shows.

The packing house, in full operation, was again of especial value. The big grader and sorter was running morning, afternoon and evening with a full crew of packers, handlers and superintendent. Instead of having a quantity of selected apples to be repeatedly used in the demonstration, the packing house handled the fruit from several orchards on a regular commercial basis. The apples had been bought in the orchards by the Spokane Fruit Growers' Company and when put through the packing house, they were sent out as a regular commercial product. The advantage in this system was that the grower saw the full actual operation and not merely a demonstration with selected fruit.

There was an unusually large line of orchard appliances on exhibition. These included several varieties of spray pumps, pruning implements, spray material, trucks, tractors, picking bags, ladders, etc. All of them were given prominent positions in proximity to the packing house and orchard accounting room, an arrangement which pleased every one interested. Many growers spent their entire time in the section of the building devoted to the practical

Continued on page 26

Blast holes for trees and give the roots more pasture

A tree in a blasted bed (at left) roots deeper, grows faster and bears earlier than a tree set in an ordinary dug hole (at right).

"The soil is the pasture in which the roots of the tree feed," says the Wyoming Experiment Station. "Blasting enlarges the root pasture, breaks up the hardpan and subsoil and permits the roots to go down and get plenty of food."

Plant your fruit trees in beds blasted with

GIANT FARM POWDERS STUMPING—AGRICULTURAL

—Eureka Stumping or Giant Stumping—which are made especially to meet Pacific Coast farm and orchard conditions. They pulverize the subsoil better than ordinary dynamites which often act too quickly and pack the earth.

Book "Better Orchard Tillage," FREE

It tells and shows how to give your trees more pasture; how to blast for planting and how to increase the crops of bearing trees. Other books—on Stump Blasting, Boulder Blasting, Ditch Blasting and Subsoil Blasting for farm crops—are also sent free. Mark in the coupon the books that you prefer.

Because the superiority of Giant Farm Powders is so generally acknowledged, other explosives are frequently offered as "giant powder." Insist upon having the genuine—always bearing the Giant brand.

THE GIANT POWDER CO., Con.

HOME OFFICE: SAN FRANCISCO

"Everything for Blasting"

Distributors with magazine stocks everywhere in the West

Tree planted in a blasted bed.

Tree planted in a spade dug hole.

FREE BOOK COUPON

THE GIANT POWDER CO., Con.
San Francisco.

Send me your illustrated books on the subjects which I have marked X:

- ☐ Stump Blasting
- ☐ Boulder Blasting
- ☐ Subsoil Blasting
- ☐ Tree Planting
- ☐ Ditch Blasting

202

Name _____

Address _____

Write below your dealer's name.

Compatibility Table—Insecticides, Fungicides

[EDITOR'S NOTE.—It is frequently necessary to combine different sprays to spray for different diseases and pests at the same time. For the reason that in order to get proper control of two different troubles it is necessary to spray with two or more materials at the same time. In addition, combining sprays is economy. In doing so two or three spray materials can be put on at one time, instead of going over the orchard two or three times. Just what sprays can be mixed and what can not be is a subject that many growers are not thoroughly familiar with. Information on this subject has not been in very definite form nor arranged in a practical way for the fruit grower. It is frequently difficult to find out and necessitates the asking of many questions. Mr. George P. Gray, of the Experiment Station of the University of California, has arranged this information in a very practical way in tabular form, which will be of assistance to the growers.]

		Fungicides			Contact Insecticides				Alkalies	Acids
		Bordeaux	Lime-Sulphur	Iron Sulphid	Cyanid Fumigation	Tobacco	Soaps	Emulsions		
Stomach Poisons (Arsenical)	Paris Green	A-1	D	A-1	D	?	D	D	D	D
	Calcium Arsenite....	A	D	A		A	D	D	D	D
	Lead Arsenate.....	A-1	?	A-1		A	D	D	D	C
	Lead Arsenate.....	A	B	A		A	A	A	A	D
	Zinc Arsenite.....	?	D	A-1		A	D	D	D	D
Contact Insecticides	Lime-Sulphur	?	—	—	A	A	C	D	C	C
	Emulsions	?	D	C		A-1	A	—	D	D
	Soaps.....	{ A-1 or B }		C		A	—	—	A	C
	Tobacco.....	{ C or D }		A	A	—	—	—	B	A
	Cyanid Fumigation.	D	A							
Acids.....		D	C	D					C	
Alkalies		B	C	D						
Class					Compatible.					
A-1—Better results by mixing.										
A—Properties not changed by mixing.										
B—Efficient, non-injurious.										
C—Inefficient, non-injurious.					Incompatible, chemically.					
D—DANGEROUS MIXTURE.					[Arranged by Geo. P. Gray]					

Walla Walla district.....	Cars
Spokane district	100
Yakima Valley district.....	30
Wenatchee district	3060
White Salmon district.....	1125
	2

Total..... 4317

Reports from the fruit commissioner of Canada, Donald Johnson, shows about 132,800 barrels, or about 630 carloads, in storage in Canada, December 1.

Fruit Products

The demand for fruit at the canning establishments, evaporating plants, cider and vinegar factories has made a good market for all cull fruit, making it possible for the growers to receive a much larger revenue for this grade of fruit than ever before. There seems to be a market for every grade of apples grown in the state at a profitable price.

In 1913 the fruit products plants in the state used about 150 tons of apples. In 1915, 4,362 tons. There were about 270 prune evaporators at that time which consumed the bulk of the crop. The canning of small fruits was becoming to be a prominent industry in the state.

In 1916 there were more than 8,500 tons of apples and other fruits canned in the State of Washington, more than 3,400 tons evaporated and 9,100 tons used for cider and vinegar, besides 140 tons of grapes which were used by the grape-juice factories. In 1917, nearly all fruit-product plants in the state were increasing their output, some many times, while the number of factories have been greatly increased. This has made an unprecedented demand for the cull fruit at prices which have turned a good profit to the growers and has solved the problem of the disposition of cull apples. It also removes them from competition with the good fruit in the open market.

Some plants are already reporting a shortage of stock and they will not be able to fill their orders. This should encourage all growers to conserve every apple and not allow any to go to waste in the orchards, packing sheds or elsewhere, because there is a good market value in them, and as a food product they should be saved.

Washington State Department of Horticulture

By M. L. Dean, Chief Division of Horticulture

The State of Washington takes the lead in the production of apples for the year 1917. Government and other reports show that the commercial apple crop for the state is greater than that of any other state in the Union.

The quality of the fruit as a whole is up to the average, yet the codling moth

At the Grade and Pack Conference held at Spokane November 23, 1917, it was recommended that the 1917 regulations be adopted for the 1918 pack. There seemed to be much demand for a Federal uniform grade, in order that the uniform grade may become a fixed standard in all states.

CARLOADS ESTIMATED.

District	Wine-sap	Rome Beauty	Jona-than	New-town	Esopus Spitz	Delicious	Wag-ener	Arkan-sas	Other Varieties
Yakima Valley	2509	899	1590	548	568	261	230	201	3503
Wenatchee	1553	529	1431	140	884	569	...	51	2442
Walla Walla	24	311	150	30	...	23	...	3	69
Spokane .....	...	75	150	...	...	...	210	...	115
Western Washington	1	1	8	19	34	2	3	...	699
Totals.....	4087	1815	3329	737	1486	855	443	255	6828

Total number of carloads, 19,815.

has been very active and the larvæ was found entering the apples as late as the middle of October, which increased the percentage of wormy fruit over that of former years.

In some sections the yields are over-running earlier estimates. The bulk of the fruit is already sold, returns from early shipments showing good margins of profit. Scarcity of boxes, shortage of labor and limited shipping facilities at times seemed alarming, but where proper storage facilities were provided the crop was secured with a minimum of loss.

Reports show that there were 2,112 carloads of peaches and 1,465 carloads of pears shipped, beside those used by the fruit products factories. Cherries, prunes, plums, apricots, strawberries and other small fruits showed an aggregate of 965 carloads.

Apples in Storage

Careful investigation shows that there were about 4,317 cars of apples left in the apple-producing sections of Washington December 1st, distributed as follows:

FURS IN STRONG DEMAND

Coyotes, Moles, Lynx, Cats, Muskrats and Martins bringing record prices.

Send for Price List and Tags.

OSCAR GARD

75 Marion Street

Seattle, Washington



RABBIT SKINS
ARE VALUABLE
 We will pay from 4 to 15 cents each for dry Jack and tame rabbit skins and will take millions of them.
Mole Skins ALSO WANTED
 Rid orchards and gardens of these pests. Let us know what quantity of rabbit skins you can gather and we will make you special prices. Write today.
 Get our price list on all kinds of furs—muskrat, mink, skunk, etc.
FUNSTEN
 FUR & COMPANY ST. LOUIS, Mo.
 561 Funsten Bldg.



Be "U. S. Protected" When Chilling Rains Pelt

Sloshing around in pneumonia-breeding weather, your feet need the rubber footwear that will keep them warm, dry and comfortable and keep you healthy.

U. S. Rubber Footwear

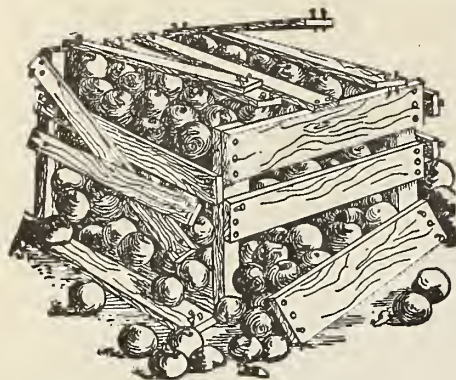
meets the situation—"U. S. Protection" is the all 'round comfort, long wear and economy which you are sure of in every pair of "U. S." Protection for your feet, your health and your pocketbook. Made for heavy service, double duty, reinforced where the wear is greatest, they are bound to give utmost satisfaction.

There are styles suited to every outdoor worker. Every pair carries the "U. S. Seal," the trade mark of the largest rubber manufacturer in the world. This seal is your protection. Look for it and be sure of it.

For sale everywhere. Your dealer has the style of U. S. Rubber Footwear to meet your needs, or can readily get it for you.

United States Rubber Company
New York

U. S. Rubber Footwear



BEFORE using Cement Coated Nails

Western Cement Coated Nails for Western Growers

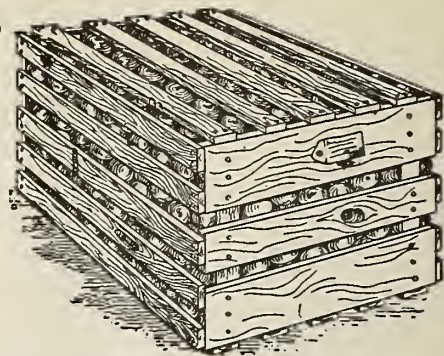
Our Cement Coated Nails are always of uniform length, gauge, head and count. Especially adapted to the manufacture of fruit boxes and crates. In brief, they are the Best on the Market.

Write for Growers' testimonials.

Colorado Fuel & Iron Co.

DENVER, COLORADO

Pacific Coast Sales Offices
Portland, Spokane, San Francisco
Los Angeles

AFTER use of C. F. & I. Co.'s
Cement Coated Nails

Spraying Problems and the Outlook for 1918

By Leroy Childs, Entomologist and Plant Pathologist, Hood River Branch Experiment Station, Hood River, Oregon

THOUGH it is several weeks before spring spraying activities will be in order, growers should nevertheless be looking forward and making their plans for the coming campaign, in order to satisfactorily cope with the many irregularities that will have to be faced on account of the disturbed economic conditions.

Chief among these irregularities, and which will probably prove most annoying to many of the orchardists, will be that of available labor. Spraying, in order to be effective, must be attended to at very definite, well defined periods, or results measured in degrees of control will be very poor, accompanied by the wasting of much valuable time and costly spray materials. In the face of this labor scarcity, growers should take every precaution in the arrangement of a workable spraying scheme or outline before the season arrives, in order that no unnecessary delays occur when the time arrives for operations to start. The machines should all be overhauled and tested, rotten hose replaced by new, new discs for the nozzles obtained—in fact, get all of the machinery connected with the spraying work in readiness while there is plenty of time to attend to it. The apple growing sections have all lost many men, men trained in the art of spraying, the loss of which can not help but influence the aggregate results obtainable in pest control in the different communities unless extra precautions are taken. An expert rod man is not made through intuition, nor does he become proficient from observations or demonstrations. He only becomes efficient and valuable through actual experience and days of practice. The novice must go through the spray-in-the-eye period; he must learn how to manipulate his rod against the wind, and, above all, he must be taught to leave nothing uncovered, for upon his thoroughness, even in the form of oversight in a single spraying, hinges the fruits of the season's tedious work.

What, then, should the orchardist, dependent upon green, untried help, do? In the first place, before it is time to actually begin the spraying, conduct a little school; take a little time off, or

discuss it with the help while attending to other labors, but at any rate try to get them interested in the why's and wherefore's of spraying. Tell them of the codling moth, its life history and behavior, and why it is necessary to fill the calyx cups with the poison in order to obtain best results. In the control of apple scab tell them how the fungus lives over the winter on the fallen leaves, from which spores are discharged over a period of two or three months after the foliage comes out in the spring. How, in order to prevent infection and keep all parts of the trees coated, it is necessary to use lime-sulphur at intervals not to exceed fifteen days from the time foliage appears, and that it is necessary to continue this practice until the spring rains, which favor spore germination, cease. Impress upon these men the fact that apple scab fungus grows upon both upper and under surfaces of the foliage as well as the fruit, and that after infection once takes place it cannot be destroyed. That it soon begins producing more spores and thus continuing the spread of the disease. If the foliage is kept clean early in the season little trouble will be encountered later, if the regular spraying practices are followed. If, on the other hand, neglect or some other factor has permitted the occurrence of infection on the foliage, even if this is apparently only slight, control operations for the remainder of the season are severely handicapped. Such a condition existing, extreme care in the application of the remaining sprays accompanied by some good fortune in the way of weather conditions will only make possible effective control. The only way to fight apple scab is to get the jump on it early in the season and stay ahead of it with the spray wagon until the spring rains are over.

The grower must often remind his new men of the need of giving particular attention to the spraying of the tops of the trees. We have found in supposedly well sprayed orchards that there is a definite progression in the degree of scab infection from the ground to the tops of the larger trees. On the trees studied there occurred seven to

ten times as many scabby fruits between a height of fifteen and twenty-eight feet as there was between the ground and fifteen feet. The failure to keep to tops protected with spray is the only possible explanation for the difference. Theoretically, there should be much more scab nearer the ground, owing to the proximity of the overwintering spores being discharged from the fallen foliage, and, later in the season, the washing down of myriads of summer spores upon the lower foliage and fruit.

During the first few days at least, and most of the time if possible, the orchardist should watch and follow his green crew. No new man can be expected to begin and spray his trees thoroughly from the start. He will not do it, regardless of the fact that he is expected to. The chances are 100 to 1 that during his early endeavors the work is extremely poor. You must remember that he must go through the agonies resulting from the presence of lime-sulphur in his eyes, not once, but many times, before he learns how to avoid it. Though he gamely stays with the rod, he is unable to see just what he is doing. The orchardist should be on hand, pointing out overlooked limbs. He should see to it that the rod men turn over their nozzles in order to cover the under surfaces of the leaves; in fact, there are dozens of little points that are entirely unknown to the new man, who will not find them out for days if left alone, and all at your expense. The early sprays are more important than the later ones usually, so make your crew a veteran one just as soon as possible.

The failure in the excessive development of apple scab in the Northwest during the past season should materially assist in its control during the coming season. In Hood River this natural factor, combined with very effective work on the part of many growers, reduced infection in numerous orchards to 1 per cent or even less. The foliage likewise was kept free from infection. This latter condition, therefore, reduces materially the chances of new infection in the spring, owing to

Bean Double Giant

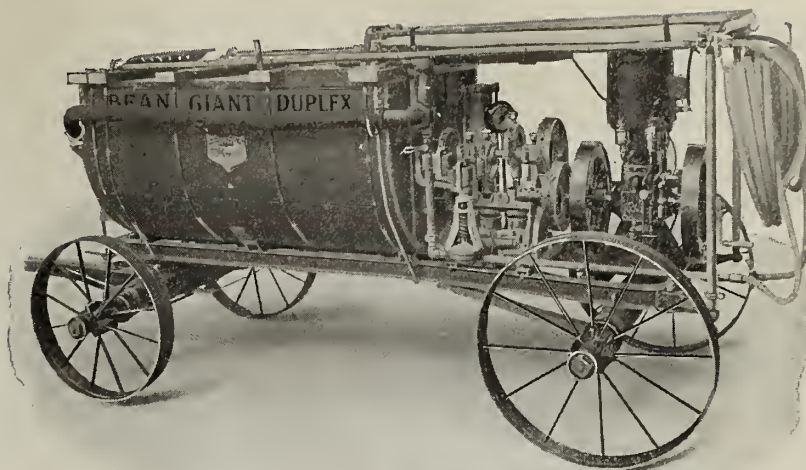
Capacity 25 gallons per minute, 400 lbs. pressure. Supplies 10 or 12 lines of hose.

Bean Giant Triplex

Capacity $8\frac{1}{2}$ to $11\frac{1}{2}$ gallons per minute, 200-250 lbs. pressure. Supplies 2 to 4 lines of hose.

Bean Giant Duplex

Capacity 6 gallons per minute, 250 lbs. pressure. Supplies 2 lines of hose.



Bean Power Sprayers

Bean Little Giant Duplex

Capacity 5 gallons per minute, 200 lbs. pressure. Supplies 2 lines of hose.

Bean Pony Duplex

Capacity 5 gallons per minute, 200 lbs. pressure. Supplies 2 lines of hose. (Overhead suction.)

Bean Eureka Sprayer

Capacity $2\frac{1}{2}$ gallons per minute, 200 lbs. pressure. Supplies 1 line of hose. A one-man, one-horse outfit.

Bean Midget Sprayer

Mounted on skids. Capacity $2\frac{1}{2}$ gallons per minute, 200 lbs. pressure. Supplies 1 line of hose.

THE GROWERS IN YOUR SECTION WHO ARE PRODUCING THE LARGEST, CLEANEST AND MOST PROFITABLE CROPS ARE THE GROWERS WHO ARE EQUIPPED WITH THESE STURDY, EFFICIENT, HIGH-GRADE SPRAYERS

The almost universal use of Bean Power Sprayers throughout the Northwest is not merely a matter of chance. It's because the growers of this wonderfully productive section have learned that the Bean is an indispensable factor in the growing of the most and the best fruit. Clean trees are of vital importance—and nobody knows it better than the apple grower himself! It's such advantages as these that have made "Bean" and "best" synonymous with Northwest apple men:

Constant Pressure—Bean Pressure Regulator holds pressure at any desired point. When not spraying engine runs free, thus saving gasoline and wear and tear on engine and pump.

No Stuffing-Box—and hence, no stuffing box troubles. Our cylinders are equipped with cup plungers.

No Loss of Time—For example, any valve can be removed from pump under full pressure while engine is running. Many other time-saving features.

Flexible—The Bean is built low down and compact. It is easy to handle under all conditions.

Economical—Bean parts are interchangeable. Worn parts quickly, easily and cheaply replaced.

Heavy Pressure—All Bean Outfits are built to throw the liquid at heavy pressure so as to do effective work. Pressure guaranteed.

Send for Our Complete New Catalog of Hand and Power Sprayers, Spray Hose, Accessories, Etc.

It illustrates and describes the entire Bean line, explains the many distinctive exclusive Bean features, and tells you everything you ought to know about spray pumps. Send the coupon—now. Also, see your nearest Bean dealer. We have representatives in all fruit-growing sections.

Bean Spray Pump Co.

213 W. Julian Street
SAN JOSE, CAL.

12 Hcsmer Street
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Bean Spray Pump Co.

213 W. Julian St.
San Jose, Cal.

12 Hcsmer St., Lansing, Mich.

Gentlemen: Please send me your new complete catalog

No. 30. I have.....

acres of.....

and am interested in
HAND PUMPS..... ACCESSORIES.....
POWER SPRAYERS.....

Name.....

Address.....

It Pays to Buy the Best

Cheap outfits can always be had, but the best outfits are difficult to get at this time, as the demand for them is stronger than ever before. Therefore if you want a Bean investigate at once. We are placing extra large stock of repair parts and extras in Portland and other Northwest points, so as to take care of all of our customers and avoid delays in shipping.

**BEST SERVICE-
QUALITY & PRICES**

**PERFECTION IN
FRUIT
LABELS**

**THE
SIMPSON & DOELLER Co.**
1423-24 NORTHWESTERN BANK BLDG.
PORTLAND, OREGON.

E. SHELLEY MORGAN
NORTHWESTERN MANAGER

**WE CARRY—AND CAN SHIP IN 24-
HOURS—STOCK LABELS FOR PEARS,
APPLES, CHERRIES & STRAWBERRIES.**

the fact that the disease overwinters on the old leaves. This natural advantage does not warrant the neglect of proper spraying. The following of the regular schedule, especially in the early sprays, will be absolutely necessary, in order that control be obtained. The early sprays in 1918 will be the important ones for scab control. The delayed dormant, pink, and calyx applications of lime and sulphur cannot under any condition be dispensed with, and this will also probably be true of the ten-day application. Local conditions will dictate further procedure. In the almost complete lack of infection, which we can expect provided the earlier applications have been well timed and thorough, it will undoubtedly be possible to omit the thirty-day spraying of lime and sulphur.

In connection with scab control work that of mildew should receive consideration. Powdery mildew in many sections, especially those in which the regular lime-sulphur applications have not been used, causes a great deal of damage to fruit spurs, terminal growth and to the leaves. In orchards where mildew has not been allowed to become thoroughly established the regular lime-sulphur applications will keep mildew well in check. When once thoroughly established, the addition of iron sulphide mixture will materially assist in checking the advances of the disease. The mildew fungus begins activities as soon as the buds burst in the spring, and for this reason spraying should begin at that time or when the trees have reached the delayed dormant condition.

Spraying for mildew during the remainder of the season should be timed the same as that for scab control.

Our experimental work during the past two years has included the use of more dilute mixtures of lime-sulphur in the different applications. Due to the fact that the past season was not a favorable one upon which to draw conclusions, we are not in a position to alter the recommendations that were given out last season. Preliminary results indicate that the strengths of several of these applications can be materially reduced without destroying the effectiveness of the spray. The accompanying spray program, based on experimental results obtained at Hood River, has been arranged.

(To be continued)

Stretching the Meat

It is possible to make a little meat go a long way. Meat pies and meat stews offer a variation for every day in the month. In these combinations a small piece of meat can be stretched to flavor a big dish. Try these hot savory dishes, the whole family will like them.

Fish Chowder.—Rabbit, fowl, or any meat may be used instead of the fish, or tomatoes instead of milk. Carrots may be omitted: 1½ pounds fish (fresh, salt or canned), 9 potatoes peeled and cut in small pieces, 1 onion, 2 cups carrots cut in pieces, 3 cups milk, pepper, 3 tablespoons flour, 1 tablespoon fat. Fry chopped onion in fat for five minutes. Put fat, onions, carrots and potatoes in kettle and cover with boiling water. Cook until vegetables are tender. Mix flour with one-half cup cold milk and stir in liquid in pot to thicken. Add the rest of the milk and the fish which has been removed from the bone and cut in small pieces. Cook until the fish is tender, about 10 minutes. Serve hot.

Tamale Pie.—2 cups cornmeal, 2½ teaspoons salt, 6 cups boiling water, 1 onion, 1 tablespoon fat, 1 pound Hamburg steak, 2 cups tomatoes, half teaspoon cayenne pepper or 1 small chopped sweet pepper. Make a mush by stirring the cornmeal and 1½ teaspoons salt into boiling water. Cook in a double boiler or over water for 45 minutes. Brown the onion in fat, add the Hamburg steak and stir until the red color disappears. Add the tomato, pepper and 1 teaspoon salt. Grease a baking-dish, put in a layer of cornmeal mush, add the seasoned meat and cover with mush. Bake 30 minutes.

New Marmalade Without Sugar

Now the papers are calling for fifty-fifty marmalades. The recipes below, though not of the fifty-fifty variety, reduce sugar to zero and introduce other surprises.

Prune Conserve.—2 dozen prunes, ½ pound raisins, 2 oranges, ½ cup corn syrup, ½ cup water, ¼ cup nut meats. Dried apricots, peaches or canned plums may be used in this recipe. Wash and cut prunes in pieces; add chopped raisins and orange pulp and peel, cut

Make more Money Pull big stumps by hand



Showing
easy lever
operation

Clear your stump land cheaply—no digging, no expense for teams and powder. One man with a K can rip out any stump that can be pulled with the best inch steel cable.

Works by leverage—same principle as a jack. 100 pound pull on the lever gives a 48-ton pull on the stump. Made of the finest steel—guaranteed against breakage. Endorsed by U. S. Government experts.

**HAND POWER
Stump
Puller**

Write today for special offer and free booklet on Land Clearing.

Walter J. Fitzpatrick
Box 330
182 Fifth Street
San Francisco
California

very fine; then add corn syrup and water. Cook slowly until it is the consistency of marmalade. Add chopped nuts five minutes before removing from fire.

Carrot Honey.—Take one pint grated raw carrot, two cups white syrup and two lemons. Mix ingredients and add the grated rind of one lemon. Heat slowly and simmer the mixture until it is thick and clear. Turn into scalded jelly glasses and when cold cover with hot paraffine. Serve with cold meat or as a sauce for puddings.

Scotch Orange Marmalade.—To two pints ground oranges (pulp, rind and juice) add two pounds or honey, and cook to a thick marmalade.

Breakfast Spoon-Breads

Virginia Batter-Bread.—1 cup white cornmeal, 1½ cups boiling water, 1 cup sweet milk, 1 teaspoon salt, 2 teaspoons baking powder, 2 eggs. Sift meal into a bowl. See that the water is boiling vigorously, pour over the meal, stirring at the same time. When lukewarm, add the sweet milk, the well-beaten egg yolk and beat thoroughly. Add the baking powder and last fold in the stiffly-beaten whites. Pour into a hot, well-greased baking dish and bake in a moderately-hot oven thirty minutes. If baked in a shallow pan, twenty minutes will suffice.

Hominy Bread.—2 cups boiled hominy grits, 2 eggs, 1 cup sweet milk, ½ cup flour, 1 teaspoon baking powder, 1 tablespoon fat. Cook hominy with four times the bulk of water. Cool and add the sweet milk and well-beaten eggs. Sift in the flour and baking powder. Last add the hot fat and pour into greased baking dish and bake in hot oven until firm and brown, but not stiff.

SPRAYING REVOLUTIONIZED

—BY A—

NEW SYSTEM

This Advertisement Appeared
in the **Fruit Grower**

Aug. 15th, 1916

"Friend" was First and spent thousands of dollars to develop and place it on the market.

Evidence of "FRIEND" priority in this new system is found in this FRUIT GROWER advertisement and the thousands of "FRIENDS" spray guns used in 1916 and 1917.

Towers and Spray Poles had annoyed Horticulture long enough so "FRIEND" invented the

SPRAY GUN

A small, light device that one man could hold and distribute the entire capacity of the largest power sprayer alone — with ease, **FASTER** and **BETTER** than two men with towers and long poles and so constructed that it could be used equally well on all power sprayers.

The Gun was soon
Characterized

SPRAY GUN
NUSYSTEM

and the System or
Method called

Are You A Grower? Then you want the best there is; when you buy a sprayer or spray-gun, you want it for business; you want the kind that always makes you feel that you made the right choice.

Are You a Dealer? Then you want the line that will enable you to LOOK YOUR CUSTOMERS SQUARE IN THE EYE when you talk "spray-gun" to him. If you are not a "FRIEND" dealer, you should apply NOW.

This has proven to be the world's greatest horticultural achievement and the "FRIEND" line is a live wire, business-getting proposition.

The "Friend" SPRAGUN: Light weight, quick action, durability and simplicity—are the chief features of the gun. Light enough to be held in one hand; quick action for any kind of spray desired; durable, by special materials and ingenious design; simple in construction, only one working part. All who used the "FRIEND" gun say that it not only saved 25% of spray solution but did much better work—owing to the great projectiveness of fine spray; some prominent growers have said that they would not take \$1,000 for their SPRAGUN. Don't spray again without a "FRIEND" gun; there will be many substitutes but—only one "FRIEND."

"I will take any power sprayer that will maintain 200-lbs. pressure and with one line of hose and the "FRIEND" gun, will do more work and a better job during the day, than three men can do with the old system."—Grand Rapids, Michigan.



THE "FRIEND" MANUFACTURING COMPANY has a reputation for square and honest dealing and has chosen its representatives with the greatest possible care. "FRIEND" products are made only by THE "FRIEND" MANUFACTURING COMPANY and can be obtained only from its authorized representatives. This remarkable service is now close at hand; the Western distributors are:

The California Rex Spray Co., Benicia, California
The Medford Rex Company, Medford, Oregon
The Wenatchee Rex Spray Co., Wenatchee, Wash.
Local dealers in all sections

The Payette Valley Rex Spray Co., Payette Valley, Idaho
The Rex Company, Omaha, Nebraska
The Toledo Rex Spray Co., Toledo, Ohio

Cut out and mail to nearest "FRIEND" dealer

With this peerless organization to carry "FRIEND" blessings to the Western fruit growers, all horticulture will rejoice.

Fill out the coupon and mail today to nearest "FRIEND" distributor.

A limited output, going fast, write today

The "Friend" Manufacturing Company
Gasport, New York, U. S. A.

I am in the market for power sprayer, large.....
medium.....
small.....
SPRAYGUN.....

I have.....acres of fruit.

Name.....

Address.....

B.F.118

Spraying Revolutionized

By the present system altogether too much time is spent in a large orchard and hereafter the work will be done by a

NEW SYSTEM

Dusters have their place and

"Friend"

is glad to sell them, but the liquid spray will be always in demand and now comes this method by which a large orchard can be thoroughly sprayed in one-half the time ordinarily required.

"FRIEND" has furnished practically all of the new sprayer ideas for many years, due to the untiring efforts of the "genius" department and growers everywhere will welcome this great saving of time and money.

If in the market for a sprayer that will save one-half your time fill out and mail the coupon to your best and most aggressive sprayer work.

"FRIEND"

Manufacturing Co.
Desk F Gasport, N. Y.

Fruit Grower, August 15, 1916

FRUIT-GROWERS' GREATEST LABOR-SAVING DEVICE

TOWERS AND SPRAY POLES HAVE GONE FOREVER

"FRIEND"

NUSYSTEM SPRAY GUN

DOES THE WORK



WORKS EASY
A simple turn of the wrist sprays close or far

SAVES LABOR
One nozzle man to a sprayer

SAVES TIME
Moved quickly. Taken anywhere

SAVES MONEY
No catching or clogging
Costs less than old style equipment. Works on any sprayer

Write Today. Name this Paper. Agents Wanted
Yakima Rex Spray Co.
Sales Agents for
Montana, Idaho, Oregon, British Columbia

Better Fruit, May, 1917

The "Friend" Power Sprayer When you have bought a "FRIEND" Power Sprayer, you will talk like all the other owners: They say—"It's a wonder; so handy; so convenient to work around, goes anywhere, doesn't upset, draws easily, so powerful, so well designed, every part built for its place and best of all—puts the spray where I want it, etc." These wonderful sprayers are now built in three sizes; small, medium and large. Our Service Department will help you decide which to buy. **DO NOT WAIT**—this season's output is going fast; you will find the "FRIEND" a TRUE FRIEND and a MONEY-MAKER.

"Our NUSYSTEM power sprayer has proved to have twice the capacity of any other sprayer we have ever used; we are ordering one more and with these two NUSYSTEM rigs and four men, we will do the work formerly requiring four rigs and twelve men."—Waterville, Ohio.

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HOOD RIVER, OREGON

Official Organ of The Northwest Fruit Growers' Association
A Monthly Illustrated Magazine Published in the
Interest of Modern Fruit Growing and Marketing
All Communications Should Be Addressed and Remittances
Made Payable to

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ADVERTISING RATES ON APPLICATION

Entered as second-class matter December 27, 1906, at the
Postoffice at Hood River, Oregon, under Act
of Congress of March 3, 1879.

President W. J. Kerr.—The State of Oregon is to be congratulated on the decision of Mr. Kerr to remain as president of the Oregon Agricultural College. Mr. Kerr deserves the appreciation and thanks of every resident of the state for his loyalty to the state and for his affection for its inhabitants, indicated by the fact he remained at a lesser salary than he was offered elsewhere. Under President Kerr the Oregon Agricultural College and the Experiment Station has made a most wonderful advancement. Through his guidance the institution has accomplished the greatest amount of good for the farming industry in the state that it ever accomplished since the beginning. Under Mr. Kerr's guidance, I speak more particularly of horticulture, although the same is true of all other departments of farming carried on in connection with the Experiment Station, an institution has been built that is second to none anywhere in the world, with no superiors. The work in the horticultural department stands out pre-eminently compared with all other horticultural institutions in the world. In fact the success has been so marked that other states, being aware of the great work being done by the Oregon Agricultural College, have persistently and continuously been endeavoring to take away its ablest professors and instructors, offering them larger salaries than the State of Oregon thought it could afford to pay. Quite a number of very valuable men, attracted by higher salaries, left, which is to be regretted. Many others, including Mr. Kerr, have been offered higher salaries, but their sense of loyalty to the State of Oregon, connected with the hope, in which we think they were justified, that the state in its growing prosperity would appreciate the work being done by the Oregon Agricultural College to the fullest extent, and in the near future be able to

pay a salary that is equal to that offered by other states. President Kerr, and others who remain, have the heartfelt thanks of every fruit grower, every farmer, and, we believe we can honestly say, of every resident of the State of Oregon.

G. Harold Powell.—Nearly every fruit grower in the Northwest is acquainted with Mr. G. Harold Powell, who for many years was chief executive in the Horticultural Department of the Department of Agriculture, Washington, D. C., during which time he visited the Northwestern fruit sections annually, making friends wherever he went. Mr. Powell is now assistant to Mr. Hoover in the food conservation. A very nice account of Mr. G. Harold Powell's life is printed in the Literary Digest of December 15, being extracts from an article appearing in the Country Gentleman. Mr. Powell is 45 years of age. A few of his achievements that signify his ability in a most emphatic way will be of interest. He entered Cornell at nineteen years of age, paying his own way by running a boarding house for students. He entered the Department of Agriculture, rapidly advancing and becoming chief executive of the department. It was Mr. Powell who, in his research work, discovered that thousands and hundreds of thousands of dollars lost on the decay of oranges in transit was due to rough handling in picking and packing—a fact unknown up to that time. It was Mr. Powell who discovered that the great loss on peaches in transit from Georgia and other localities was due to the peaches being shipped too warm, and who discovered the loss could be prevented by pre-cooling. It was Mr. Powell who discovered that the great loss on apples in shipment and poor keeping when stored was due to rough handling, too late picking and too long a delay after being picked before being placed on cold storage. It was Mr. Powell who was called on to become general manager of the California Citrus Fruit Growers' Association, which handles about 70 per cent of the oranges in California, and under the able management of Mr. Powell the Citrus Fruit Growers' Association has been successful, and under his administration the orange growers made more money than they ever made before. Appreciation of his ability is shown by his success in all of these affairs, and it is due to his success in these matters that he was chosen as assistant to Mr. Hoover.

Apples on Cold Storage.—A report issued by the Department of Agriculture, Washington, D. C., December 12, shows a decrease of apples on cold storage in the United States compared with December 1 last year of 1 1/10 per cent. The total number of box apples on cold storage in 1916 was 796,620 boxes; in 1917, 939,838. Barreled apples show a decrease; however it is true that the amount of box apples on common storage is considerably larger than last year. Prices during the month of December have been depressed. This is undoubtedly due to the very heavy

shipments. During October cars were short, but on the first of December the number of cars shipped exceeded the number of cars shipped last year by 20 per cent. Cars were loaded fully 20 per cent heavier, which in reality makes an increase of 40 per cent, probably more, in the quantity of apples shipped, going onto the markets during the month of November, over the same month last year. It is stated the loss has been pretty heavy from freezing weather. The heavy shipments have resulted in some pretty low prices, which undoubtedly has caused a very heavy consumption, indicated by the fact that the amount of box apples on cold storage is very little in excess of last year. Some of the big factors in the business seem to think that the big shipments have resulted in a very heavy consumption. The loss in common storage will be heavy, consequently there will be no over-supply on hand after the first of the year. There is a general opinion there will be a good demand commencing the latter part of January or the first of February, with no excess supply, and consequently there is every reason to assume that prices will be fair a little later on during the year.

Spraying.—The fruit growers of the Northwest have suffered a severe loss for many consecutive years from fungus on apples. Strange to say, it took several years before they became informed and fully appreciated the necessity of a rigid spraying program, but it is a pleasure to announce that in 1917 the fruit growers got the right idea and did the work right. They began with sulphur sprays—lime and sulphur was used extensively; application was made in the semi-dormant, sometimes called the pre-pink spray, or when the leaves are one-quarter to one-half an inch long. This was followed by another application in the pink, another application just after the petals dropped, known as the calyx spray, and another two weeks later. Those who sprayed, following this program, doing it thoroughly with the proper strengths, had crops that were entirely free from fungus. In some sections additional spraying was necessary. No grower who wants a clean crop, free from fungus, can afford to take any chances in 1918, by omitting any sprays. But one word more of advice. On account of the shortage of supplies and the uncertain advancing prices, it seems wise to suggest to the fruit growers that they purchase their fungicidal sprays as early as possible.

Thrift Stamps are intended to enable those people who cannot spare the amount necessary to purchase Liberty Bonds to help carry on the war and at the same time to help themselves by becoming saving and thrifty. These stamps will be on sale from December 3, 1917, to January 31, 1918. A thrift card is furnished to all purchasers of 25-cent stamps. This card has space for sixteen stamps. When all the spaces are filled the thrift card may be exchanged for a \$5.00 stamp at the

bank, postoffice or other authorized agency, by adding 12 cents in stamps prior to February 1, 1918, and 1 cent additional each month thereafter. Those who prefer may buy a \$5.00 stamp outright. These will be on sale from December 3, 1917, to January 31, 1918, for \$4.12. They automatically increase in value until January 1, 1923, when the United States Government will pay \$5.00, at any postoffice or at the Treasury in Washington, for each stamp affixed to a war-saving certificate. War saving certificates contain 20 spaces. If these are filled with war-saving stamps between December 3, 1917, and January 31, 1918, the cost to the purchaser will be \$82.40. On January 1, 1923, the United States Government will pay the owner of the certificate \$100, a net profit to the owner of \$17.60—a mighty good way to help one save and at the same time help the Government carry on the war.

Codling Moth in 1917.—In previous years the growers have had varying degrees of success with codling moth. Where conditions were favorable apparently they got through with slight damage. It is almost invariably true that following clean crops growers felt that the codling moth had been almost completely eradicated and more or less failed to apply sufficient number of sprays or put them on at the proper times. The man who wants a clean crop of apples cannot afford to miss any one of the arsenate of lead sprays during the entire season; putting on every spray is the only sure road to success. Equally important is the selection of some well-known brand, one that either you or your neighbors used and obtained good results. The price of arsenate of lead undoubtedly will be higher this year. It is also possible that it may be difficult to obtain the necessary quantity if the grower postpones purchasing until late in the season. The Government has issued instructions that arsenic should be conserved, hoping to prevent any possible shortage in the supply needed by the fruit growers.

Land Clearing and Increased Production.—The administration, realizing the condition fully in Europe, and in this country as well, understands that the United States must feed the Allies, knows also that the food supply next year will be very short unless superhuman efforts are made to increase production. It is a well-known fact that production can be increased in two ways—intensified farming and more planting. That everyone will endeavor to increase by intensity goes without question. It is the duty of everyone to increase his output by increasing the

MYERS SPRAY PUMPS
KILL
THE PESTS THAT EAT YOUR PROFITS
SAVE YOUR CROPS BY SPRAYING MYERS WAY

Your Uncle Samuel Says:—"Conserve all food so that our Sammies at the front can be abundantly fed, and the folks at home still have plenty."

This message is of such importance to owners of orchards and fruit bearing trees, vines and bushes, that Fruit Growing Associations, Farmers' Clubs, Grange and other State and National Organizations, are urging and insisting that each member take an active part in an earnest endeavor to increase and improve his fruit and vegetable crops for 1918, and thus

place within easy reach of the general public such fruits, berries, and vegetables for preserving, canning, drying and bin storage, as will take the place of grains and other food supplies that are easier to ship and transport.

MYERS

Says—"Good Gospel—Follow it to the letter." It will pay—Pay in the satisfaction of knowing you are doing your part—Pay in a more material way through larger crops and better prices. So prune your trees and spray them MYERS WAY with a Myers Knapsack, Bucket, Barrel or Power Spray Pump or complete Spray Outfit. You will know your spraying work will be done right, for Myers Spray Pumps—All Styles—All Sizes—are tried and proven. They get spraying results many times where others have failed by killing the numerous pests which attack your trees and eat your profits.

Write for late catalog—54 pages—devoted to MYERS SPRAY PUMPS, NOZZLES, HOSE and ACCESSORIES for Spraying, Painting and Disinfecting—and be ready for action when Spraying Time comes around.

F.E. MYERS & BRO.
No. 120 ORANGE ST. ASHLAND, OHIO.

acreage wherever possible. It is the duty of everyone who has uncleared land to clear as much as his financial condition will permit. Time is short and quick action is necessary, consequently land owners should use quick and effective methods to clear land. Special blasting powders are made for this purpose. Full instructions can be obtained from any company manufacturing blasting powders. There are a number of good stump pullers made which can be obtained at a moderate price. Fruit growers should use every man-saving factor possible in doing the work.

Spray Outfits.—Spraying for fungus and San Jose scale will begin in most districts in March. The grower must bear in mind if he uses the right spray at the right time he cannot get satisfactory results unless he has efficient equipment. It is foolish for a grower to spray with a worn-out spray outfit. A grower can save money by throwing away the old rig and getting a new one, buying one that is high-class in every respect. There are several first-class power outfits manufactured. Some growers may like one, others another,

but when you buy a spray outfit be sure you purchase one that is absolutely first-class, and when you buy from a high-class and well-known manufacturer you can generally feel assured that you will get something that is first-class in every respect. You cannot buy anything good these days cheap.

Auto and Motor Trucks.—The automobile is no longer a luxury with the fruit grower and farmer. For some time fruit growers and farmers have realized that the automobile was almost a necessity. Since war was declared, on account of the shortage of men, it is absolutely necessary that every fruit grower should economize and conserve his time in every way possible. The automobile fills the bill and enables the fruit grower to come to town, transact his business and get back in the least amount of time. The automobile truck, on account of quickness and capacity, enables the fruit grower to do his hauling to and from the depot in much less time, and where larger crops are to be moved the automobile truck will do the work of several teams.

YOU CAN EARN \$50.00 PER DAY WITH THE Gearless Improved Standard Well Drilling Machine
Drills through any formation. Five years ahead of any other. Has record of drilling 130 feet and driving casing in 9 hours. Another record where 70 feet was drilled on 2½ gallons distillate at 9c per gallon. One man can operate. Electrically equipped for running nights. Fishing job. Engine ignition. Catalogue W-8.
REIERSON MACHINERY CO., Mfg., 1295-97 Hood St., Portland, Ore.

APPLE SEEDLINGS

A surplus in all grades. Grown on **new land**.
Strong, healthy Stocks that will please.

APPLE GRAFTS

Made to order. Satisfaction guaranteed. If short of labor,
let us make you Grafts for you.

A Complete Line of General Nursery Stock for the Spring Trade

Always pleased to quote prices. Ask for Price List.

Mount Arbor Nurseries

E. S. WELCH, Pres.

SHENANDOAH, IOWA

Spray Guns.—A new spray gun is being put on the market by spray-outfit manufacturers, which is being found very efficient and economical. One spray gun with sufficient power back of it in a spray outfit will do the work of two spray rods. By using a spray gun which is adapted to present machines one spray outfit with one man can do the work of two men. Large machines of greater power are being made at a moderate increase over the average power outfit, which are made with sufficient power to operate two spray guns, which will do the spraying in half of the time required by the ordinary spray outfit. A large orchardist should get a large machine and use two spray guns. A moderate-sized orchardist can use his own machine and use one spray gun instead of two spray rods. Spray guns, while they have not been used generally, give every evidence of doing satisfactory work.

MORE WORK FROM YOUR HORSES

Heavy spring work takes the surplus flesh from the horse. His collar no longer fits. His neck and shoulders chafe and gall. He can't do his full share of work and you lose money. Prevent these evils by using TAPATCO Pads.

A NEW AND BETTER HOOK ATTACHMENT

Consisting of wire staple, reinforced with felt washer (note where arrows point). This gives the hook a better hold and prevents pulling off. The weakest point is made strong and life of pad greatly lengthened.

Found Only on Pads Made by Us.

Look For The Felt Washer.

SOLD BY DEALERS EVERYWHERE

The American Pad & Textile Company

GREENFIELD, OHIO

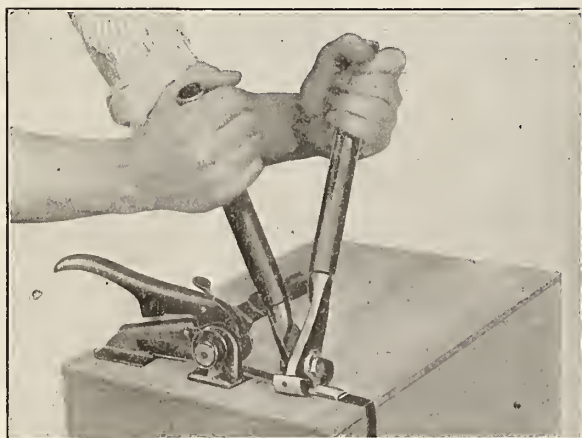
Canadian Branch: Chatham, Ontario.



Nitrate of Soda.—Many fruit growers, who had complained of light yields, have been using nitrate of soda for two years, with wonderful results. In cases where the supply of nitrate had become deficient many orchards bloomed but failed to set a crop. One orchard in Hood River blossomed well for several seasons but failed to set a crop. Nitrate of soda was applied at the proper time, about March, and in the same year the grower produced a crop of about 500 boxes to the acre. Nitrate was used again the next year and a crop of more than 500 boxes to the acre produced. It seems to be generally conceded by the fruit growers that where apples have failed to set, due to the deficiency of nitrate contained in the soil, that by judicious application of nitrate a good set and increasing yield results in a most wonderful way.

ACME

Steel Box Strapping



Used in connection with metal seals consists of encircling a package with a metal strap, drawing the strap very tight and interlocking the overlapping strap-ends within a metal sleeve (**SIGNODE**) in such a manner that the joint has a greater tensile strength than the strap itself. Nails, rivets and buckles, with their attendant objections, are entirely eliminated.

Write for
Catalog

Acme Strapping packed in bbls. of about 500 lbs. or larger pkgs.
Metal Seals packed in cartons containing 2,000-2,500 seals.

ACME STEEL GOODS CO. MFRS.

Factory: 2840 Archer Ave., Chicago

311 California St., San Francisco

Professor C. I. Lewis, one of the most eminent horticulturists in the United States, Professor of Horticulture of the Oregon Agricultural College, has a very interesting article in the December 22nd issue of the Country Gentleman, entitled "Northwestern Apples and Other Fruits." Professor Lewis is appreciated for his splendid knowledge of fruit growing and is recognized as one of the most practical men that ever filled a chair of horticulture in any of the agricultural colleges. Professor Lewis is so well known and is so popular with the fruit growers that anything we might say would be of faint praise.

Winter Short Courses.—Winter short courses will be held this year at the Washington State Agricultural College, Pullman, Washington; The Idaho Agricultural College, Moscow, Idaho, and the Oregon Agricultural College, Corvallis, Oregon. Every fruit grower and farmer who can possibly get away should write for a schedule and plan his work so as to be able to attend.

Here's the Catalog for Northwest Farmers

—And it's free

The farmer is the most important of Uncle Sam's soldiers because, as Napoleon said: "An army fights on its stomach." Every seed sown helps win the war—choose your seeds then by the select draft system.

LILLY'S seeds, acclimated for northwest soils and conditions—*best for the west*—are tested for germination and purity.

Our catalog is complete and contains the accumulated experience of thirty years in the selection of seed for Pacific Northwest farmers,

Write for free copy and buy your seeds early

LILLY'S

The Chas. H. Lilly Co., Seattle
Established 1885



Tractors.—Already a large number of men have volunteered, a large number have been drafted, and in addition to this the Government has to supply ammunition, war machinery, clothing, food and all kinds of supplies, not only for the men at the front but for our Allies, consequently every industry should use all the machinery possible in this way, relieving men for work that cannot be done by machinery. There is no line of work on the farm that takes more time or more men than cultivating. One tractor will do the work of many men and many tractors can be bought at a very moderate price.

Where they are used they not only save the cost of extra men but the cost of capital invested in extra horses, extra cost of feed. They have proved efficient, and economical and by using them the United States will be able to produce a greater amount of food, which is absolutely necessary.

Keep the Family Cow.—On account of the war, the shortage and high cost of feed in foreign countries, the number of cows will be reduced to a minimum. The same is true to a great extent in this country. A great many people are selling off their cows. This

is a serious mistake, because cows will be very high after the war and possibly be very difficult to get. With the increased production of feed undoubtedly in the near future feed will be much cheaper. The Government is urging everybody, and wisely too, to keep the family cow.

Horticulturist Wants position as manager with large orchard company. 8 years' experience in orcharding and farming; college education; married; age 31. Can furnish best of references as to ability and character. Address "C.A." care Better Fruit.

The Question of Fruit Marketing After the Great War

By Gordon C. Corbaley, Seattle, Delivered Before Northwest Fruit Growers' Conference, at Tenth National Apple Show, Spokane

THE best answer to the question under discussion has been furnished by Mr. W. F. Gwin, general manager of the Northwestern Fruit Exchange. He says: "I don't know. All precedents have been swept aside and rendered worthless. We face an entirely new situation, the complexion of which and the exact development of which no man can foresee. We have our opinions of how things are likely to develop, and that is all."

The effect of peace on the apple industry depends largely on the condition of business in the United States. Our Northwest apples are largely sold as a luxury, and are therefore peculiarly liable to business depression and hesitation. Nobody has any real idea as to what will be the exact condition of business during the first days following the coming of peace. It will be a period of hesitation and uncertainty. That will be because nobody will know what is going to happen. This uncertainty will be particularly marked because about half of the entire productive capacity of the United States will be devoted wholly to war purposes. The release of the billions of money and millions of employes from this war work will naturally make unsettlement. The period of hesitation and unsettlement is capable of almost any outcome. A great deal depends on the financial condition and the mental condition of the people. They perhaps will be so depressed and worried and scared that capital will run to cover, and we will have a smash.

I, personally, do not think so. I believe that the wide distribution of Government bonds will be one of the most valuable of influences during these first

few months of uncertainty. The return of peace will mean an immediate strengthening of the value of Government securities. There will not be a boom in Liberty Bonds, but there will be an appreciable strengthening of value that will put confidence into the many millions of citizens who will have their liquid capital tied up in these securities. All that we will need as a people to bring us out of this period of uncertainty in an aggressive, forceful frame of mind will be a reasonable measure of encouragement. Once we are no longer in doubt, business will go ahead more rapidly than ever, because we will have untold billions of capital available to invest in development. I refer not only to the capital that has been engaged in war industry, but also to the many billions of capital that will have stored up in Government bonds.

The whole world is on an inflated basis. I think that we are going to travel on an inflated basis for many years to come. That means high prices for everything, and high prices with plenty of money form the ideal conditions for our fancy apple market. I think that Mr. Ford asked me this question with the idea of leading the way to a discussion of foreign markets, rather than for the purpose of giving me an opportunity to discuss economics. He knows our tremendous interest in Seattle in foreign trade, and he naturally judges that the foreign market is to become a constantly increasing factor in the distribution of our boxed apples.

The best analysis that I have been able to get of the general foreign situation comes from our old friend, H. M. Gilbert, of the Yakima Valley, who says: "The world is going to be much more of a family of nations after the war. In rebuilding and reconstructing I look for a very active demand for fruit, as well as for all other food products. There will certainly be a big demand for labor and we shall have good times, I take it, much as they do when a city is rebuilding after a big fire. This will be especially important on the Pacific, because Japan and China are now awakened and will want to trade with us more than ever. They will want all the modern improvements of railroads, electric machinery and the other inventions of the West."

When I spoke of the former foreign market for our apples as having been of little importance, I have in mind no disrespect to our export apple business or the men who are engaged in it. It is true, thus far, we have sent abroad only a small percentage of our fancy apples, say 5 to 10 per cent of the fancy and extra fancy stock, depending on the year. The foreign trade has been nothing but a safety valve to help take the pressure off the domestic markets. This is not alone true of the apple business. It pretty accurately describes the condition of almost all American exports, except the great staples. As a people,

we have used the foreign markets to help have an outlet to make possible and furnishing of a more even supply to the really important markets within the country.

After the war this will be different. The whole world has been brought closer together. The United States has become the financial and industrial center of the world. We have shown ourselves much too big to ever be able to again stay within our own boundaries. We will certainly sell to the rest of the world and buy from the rest of the world on much larger volume and in a much more direct way than we ever have in the past. Perhaps the greatest single influence in bringing that about will be the new American Merchant marine now in process of creation as a war-time necessity.

At the beginning of the war we were forced to depend on the ocean-trade channels of other countries. Very little business moved direct from the United States to distant lands, and hardly any ocean transportation was handled by American lines.

Under the war shipbuilding program, the United States by the end of 1919 will have as great a tonnage afloat in foreign trade as will Great Britain, and we will surpass Great Britain as a peace sea power, because more than 90 per cent of our tonnage will be Government owned and available to be operated for the purpose of developing American trade lines to every corner of the world. This will present an indeed fortunate situation for us, coming at a time when we will want to do business with every country in the world and every country in the world will want to do business with us.

Now, just what will this mean to the apple business? In general terms, it will mean an enormous possibility for expansion that will depend in a considerable measure upon our being organized to take advantage of it. It is difficult to say just what it will mean in terms of business with individual countries. At the present time we have practically no export business. There is plenty of demand for our fruit, but, for various reasons, we cannot get the fruit there to supply the demand. Prosperous England could use any quantity

Fruit Tree Stocks

Apple, Doucine, Paradise, Mahaleb, Mazzard, Peach, Plum, Quince, Japan Pear and Kieffer Pear Seedlings. We can ship Mahaleb and Mazzard direct from Oregon

Apple and Pear Grafts ANY STYLE

Complete Assortment of General Nursery Stock

There is a small stock of apple seedlings this year, and with the increasing demand for apple trees, it will pay to put out a plant. But act now, do not wait until the top of the market has been reached.

SHENANDOAH NURSERIES

D. S. Lake, Pres.

SHENANDOAH, IOWA

POSITION WANTED

As manager of a fair sized apple orchard proposition by a competent and experienced man with a small family. Either salary or salary and commission proposition will be considered. Two years Horticultural Department, University of Illinois, fifteen years practical experience in bearing orchards, one of which was in the Payette Valley, Idaho. Have had considerable experience with gasoline and kerosene engines and thoroly understand all phases of apple orchard work.

Open for employment on or before March 1, 1918.

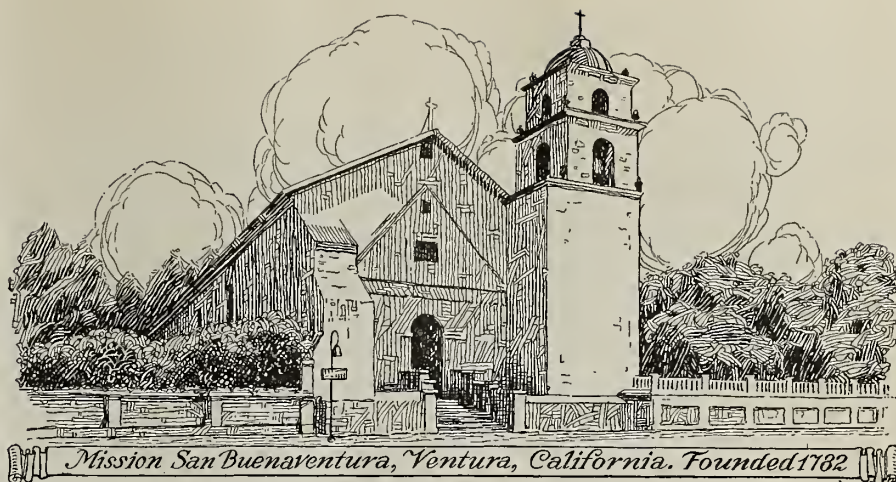
HENRY O. HINKLEY, Dubois, Illinois

of small red apples and Yellow Newtowns, if the English government could be persuaded that our apples are not a luxury and would lift the embargo. The Scandinavian countries and South America are literally crying for apples and offering all sorts of inducements, but there is practically no ship space to be had. Australia, always heretofore a dependable outlet for our early Jonathans, is closed with an embargo.

The individual markets open to our apples in the different countries will depend in a large measure on the conditions in those countries. Personally, I think that nearly all these markets will be favorable. Europe offers the largest question of doubt, because Europe is so intensely in the middle of the war that nobody knows what it is going to look like when the struggle is over. Personally, I believe that the releasing of men and capital from war occupations, and the turning of Government finances to the spending of anywhere from ten billion to twenty billion dollars in reconstructing the damaged places, will produce a condition of great activity. One element very much in our favor will be the fact that European orchards have been neglected during the war, and those that have not been entirely destroyed will show a low efficiency in production. Another pleasant element will be found in Russia. Some day in the not distant future Russia is going to complete its present occupation of blowing off steam accumulated during years of repression, and will move into a period of expansion and development that will draw much of the money and man power of the world. Russia will be a good market for our apples.

Personally, I look for a tremendous expansion in the Orient and in Australia. We will see a great outpouring of capital and of men to the new places of the world. That has come after every great war. The greatest new places of the world are Siberia, with its billions of acres of untouched resources, and China with its hundreds of millions of undeveloped labor reserves. Perhaps also in this list should be specifically included Australia, which is due to expand, although not in as great a measure as Siberia and China. Australia, you will remember, is bigger than the United States, and is capable of some expansion and development, even if it does not approach Siberia, which is more than twice as big as the United States. Northwestern part of the United States, and Australia is a market in which we have a direct interest. They take our low-colored early Jonathans that are mighty hard to market any place else, and we wish they would have a period of development that would cause them to take many thousands more of them.

As I look at this entire world situation, I find that it is impossible for me to be pessimistic. Perhaps I am so constituted that it is not practical for me to be pessimistic very long at any time. But it is pretty hard for an American citizen to be pessimistic at this time, when the center of the world is swing-



CALIFORNIA

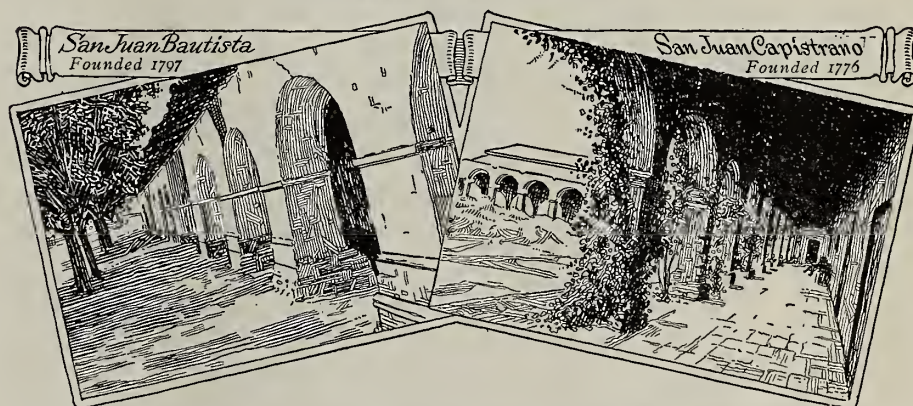
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ing to the Western hemisphere; when we are about to become the old world and when Asia is about to become the new world. We Americans, in this day of change and stress, are getting a better understanding of each other, and I believe we are developing a greater efficiency. We are going out collectively to serve the markets of the world. I believe that the question as to what foreign markets will mean to the boxed-apple business during the days immediately following the war will depend in a very large measure on our ability to organize collectively to develop these foreign markets in a big way.

Big things will have to be done if we are going to develop these markets rapidly. Chances will have to be taken and some mistakes will be made. These chances will be much better taken and we will do business much more efficiently if all the big factors in the boxed-apple business will pool their foreign trade into one big export corporation. That is a lesson that the European nations learned before the war. It is a lesson that the war is teaching to America. The big factors in the apple business of the Northwest will please take notice.

Study of Fruit-Bud Formation—Relation to Pruning

By J. R. Magness, Assistant in Research Laboratory, Oregon Agricultural College

WHAT often amounts to one of the most difficult problems that confronts the orchardist is that of securing a good amount of bloom in the orchard. In many cases it seems almost impossible to secure blossoms in trees that have reached the age at which they should begin bearing. Trees eight or ten years of age, that have never borne even a partial crop, are only too familiar to many fruit growers.

Not only do we have difficulty with a failure to produce fruit buds, but oftentimes in our old orchards we are troubled with their overproduction. Trees low in vigor will often produce so many fruit buds that the tree is simply a mass of bloom in the spring, but lacks the ability to set and mature a crop of first-class fruit. Especially is this true of old pear and prune trees.

A third condition which the orchardist has to combat, and which is closely linked with fruit-bud formation, is that of alternate bearing in many varieties of apples and pears. Many fruit buds are formed one year, with such a heavy crop of fruit following that apparently the whole energies of the tree are expended in maturing the fruit, and no fruit buds are formed for the following year. Consequently, a heavy crop is followed by no crop at all, and the orchard, instead of producing a fair

crop year after year, produces very heavily, but only once in two years.

For a number of years, investigations have been carried on at the Oregon Experiment Station to determine where fruit buds are formed on different kinds of fruit trees and for different varieties; the time of the first appearance of flower parts in the buds in different positions; and the conditions in the tree that are associated with, and which apparently control fruit-bud formation. It is proposed to present in this article some of the things that have been learned in regard to fruit buds, in order that the troubles in connection with fruit-bud formation may be more readily dealt with.

The first subject to consider is that of the positions of fruit buds in the different kinds of fruit trees. Apples and pears may be considered together, since their methods of fruiting are almost identical. By far the greatest number of fruit buds in mature trees of all varieties are borne on spurs. The terminal bud on the spur produces the flower parts, an entire cluster of flowers being formed in a single fruit bud. During the following season, if fruit is produced from the fruit bud, one or more leaf buds will develop at the sides of the spur at the base of the flower cluster. These leaf buds continue the growth of the spur, and will usually form fruit buds during the season following the one in which they are formed. Thus a spur normally produces fruit buds every other year. This varies greatly, however, for fruit buds may be formed every year, or a spur may go a number of years and never form them. Whether or not they are formed depends very largely upon the nourishment they receive.

Buds in another position which often form flower parts in many varieties, especially while the trees are young, are those formed in the axils of the leaves along the current season's growth. Such buds are of great importance in certain varieties. Much of the first crops of such varieties of pear as Bartlett and Winter Nelis, and of such apples as Jonathan and Wagener, is produced from them. Other varieties show very few such buds. It is also of interest to note that when flower parts are formed in buds in this position, they are almost invariably out toward the terminal portion of the shoot. This is very important from the standpoint of winter pruning, for a severe heading back in these trees will oftentimes almost entirely remove the bloom crop for the following year.

The last position to consider in which fruit buds are borne on apples and pears is at the terminals of shoots too long to be classed as spurs. This occurs to a greater or less degree in practically all varieties, and is of much importance in some, especially while the trees are young. In Yellow Newtowns, for example, much of the first fruit is produced at the ends of shoots

10 to 15 inches in length. If these short shoots are systematically cut from young trees of certain varieties, it may delay the time of bearing very materially.

In the case of cherries, the fruit is borne mainly on spurs. Each spur is terminated by a leaf bud, about which a number of fruit buds are grouped. The leaf bud continues the growth of the spur year after year, so the cherry spur is straight, and unbranched. Normally, fruit buds will be formed on the spur every year. A small amount of fruit in most varieties is also produced from buds on the one-year wood. When such buds are formed, they are usually toward the base of the shoot, rather than near the terminal, as in apples and pears. Consequently, they will usually not be removed by a winter heading back.

In prunes and plums, considerable variation occurs as to the proportion of the buds borne in different positions. In prunes and other European-American varieties of plums, most of the fruit buds are borne on spurs. The spurs are terminated by a leaf bud, which makes a certain amount of growth each year. The fruit buds are produced in the axils of the leaves along the new growth made by the spur. So what the spur really amounts to is a short shoot, with fruit buds in the axils of the leaves. In most varieties, a few fruit buds are pro-

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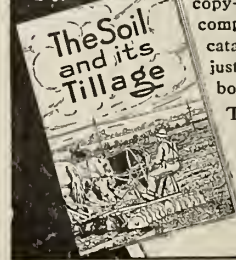
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duced as axillaries along the sides of the shoots. In certain of the Japanese plums, these assume much importance, producing a large proportion of the total blossom crop. In these varieties, they are distributed along the branch in a way similar to peach buds.

In peaches, the entire fruit-bud crop is produced on the one-year wood. The buds are borne in the axils of the leaves, normally in groups of three. In that case, the middle one is a leaf bud, while the two outside buds form flower parts. If the shoots are making a very vigorous growth, and especially if the tree is rather dense and shaded, the fruit buds are mostly out toward the terminals of the growth. On the other hand, if the shoots are making only a medium amount of growth, and the tree is well opened up to the light, the fruit buds will be well distributed along the entire length.

After this brief summary of where fruit buds are formed, it is well to consider briefly just what the exact differences in buds in various positions are, if any such differences exist. Is there any fundamental difference between a spur and a shoot, and between buds produced in the two positions? Careful microscopic study has failed to reveal any such difference. Leaf buds on spurs and leaf buds on shoots are apparently exactly the same, except in degree of development. The only difference between spurs and shoots seems to be in amount of growth made. The amount of growth depends upon nutrition, rather than upon any inherent difference, either in the shoot or in the buds. In those cases in which fruit buds are formed on both spurs and long shoots, there is apparently no difference in manner of formation and development of flower parts.

The question then arises, why do some of these buds form flower parts while others do not? If there is no fundamental difference between buds in different parts of the tree, why do apples and pears tend to bear mainly on spurs, rather than upon the one-year wood? This brings up the question of the fundamental conditions in the tree which are associated with fruit-bud formation. Before discussing this, it is well to establish the exact season during which fruit-bud formation takes place.

The season under Oregon conditions, during which the earliest evidence of flower parts in buds may be detected, has been established more definitely for apples than for any other kind of fruit. Buds on spurs of apples have been found to show the initial formation of flower parts during a period extending from the last of June until the middle of August. A few have been found to be forming even as late as September 1. Considerable variation occurs between varieties as to the exact season of this fruit-bud initiation, but for all varieties, it extends over quite a long period of time. So far as the buds on the one-year wood are concerned, they are formed at a somewhat later date. Their season occurs from the middle of August until the end of September. Thus it is seen that in apples, there is a



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period of two to three months during which fruit buds form.

Other kinds of fruit have almost the same season. Pears, prunes, peaches and cherries all have a season of fruit-bud formation extending from late June or early July until September. Most of the buds are formed between July 10 and September 1.

(To be continued)

Meat Substitute

Impelled by economy and war duty, housekeepers are collecting meat substitute dishes. These dishes are high in protein value and should be served in place of meat and in combination with fresh vegetables. Potatoes and tomatoes combine well with bean dishes. Cornbread and a green salad make an excellent combination with the fish kedgeree.

Beans and Rice.—2 cups cooked kidney bean, 2 cups cooked rice, 4 cups tomato sauce. To make the tomato sauce: Brown three tablespoons of flour in quarter cup of drippings or vegetable oil and mix with one quart of strained tomatoes and one tablespoon grated onion. Cook sauce five minutes; combine hot rice and beans; pour over them the hot sauce and serve.

Creamed Peas or Beans.—1 pint dry peas or beans, ½ cup milk, 1 teaspoon drippings, 2 teaspoons syrup, 1 teaspoon salt, pinch red pepper. Soak beans in cold water over night or until hulls rub off easily; rub between hands until all skins are removed; boil slowly with just enough water to cover them until thoroughly done; pass through a ricer; add other ingredients; whip as for creamed potatoes; serve hot.

Fish Kedgeree.—1½ cups flaked cooked fish, 1 egg, 4 tablespoons rice, 1 teaspoon chopped onion, salt and pepper to taste, 2 tablespoons drippings. Wash rice and drop slowly into fast-boiling water, with a teaspoon of salt, and boil fast until tender (about twenty minutes). Drain well and dry in a colander. Boil the egg hard, cool it in cold water, and chop it coarsely. Melt the fat in a saucepan, stir in the cooked rice, add the fish and seasoning. Make it very hot, then add the chopped egg, and serve at once. If onion is liked, fry it lightly in the fat before putting in the rice.

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An apple a day drives the doctor away. But that isn't the reason the Government has started a campaign to increase the country's appetite for apples. It's because it is up to citizens of this nation to eat 2,000,000 barrels—nearly 6,000,000 bushels—more of the fruit this year than last to prevent its being wasted, incidentally thereby saving considerable on wheat and meat.

The reason is the lack of ships. European countries have been eating 2,000,000 barrels of American apples a year, but now the space on the ships is needed for wheat, meat, munitions of war, and for troops, and apples are taboo.

Unless there is an increased appetite for apples there may be waste, as the Government's report indicates a total crop of 190,000,000 bushels, which, while a little below the average yield, is still somewhat greater than America has heretofore consumed.

The food administration is planning a campaign of publicity to induce apple eating which will extend until the last of November. It also educates the apple grower so that it will be more salable. It will also take a hand in storing the fruit and seeing that speculators do not take a hand and run up prices beyond reason.

How to Purchase Farm Supplies

It has been suggested by transportation experts who are with the Food Administration that, after the harvests are laid by, the farmer make an estimate of the fertilizer, seed, machinery and the like that he will need for the coming season, and then place his order. This will eliminate the failure to receive supplies which resulted last spring on account of car congestion and priority of shipment.

Between March 1 and July 15 of this year the railroads operating in the East and Middle West made a saving of 28,000,000 passenger miles by cutting down on the number of passenger trains. Not counting the saving in labor, this reduction continued throughout the year will mean the saving of 500,000 tons of coal per annum.

From the farmer's standpoint a like saving may be effected in the coming months. All orders for supplies should be placed early. It is also advisable for several farmers in a community to club together in ordering so that each car may be loaded to its maximum capacity, and in this manner eliminate transportation waste. By acting on these suggestions supplies will arrive in season so that time, which is so precious during the spring rush, may be saved; and at the same time the crops will have advantage of those things necessary to their successful planting, tending and harvesting. Cars should be loaded and unloaded promptly when placed on the siding. No stumbling blocks should be left in our path of preparation for a bumper crop in 1918.—Contributed by U. S. Food Administration.

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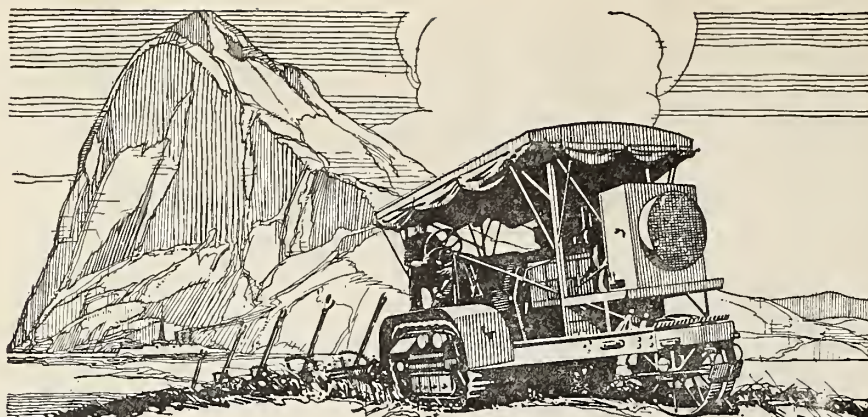
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Tenth National Apple Show

Continued from page 8.

side of the show, giving but a glance as they came into the grounds to the amusements and entertainment programs.

During three days of the apple-show period the annual Fruit Growers' Conference of the Northwest was held in the assembly rooms of the Chamber of Commerce. Each session drew a constantly-increasing attendance. Discussions of practical problems and live issues were participated in by instructors from state colleges, experiment stations and by fruit inspectors and shippers from the four Northwestern States. The discussions covered a wide range of vital subjects.

An issue which brought about the liveliest debate and engendered the deepest feeling was the proposal to change the apple grades from three to two. Discussion over this point almost reached personalities. For a time the convention seemed about equally divided over the question, but adherents of the present grades won out for another year.

Each day of the conference the delegates voted upon various slogans which had been suggested as desirable to use during the war period. By a process of elimination the convention finally awarded first honors to this slogan suggestion made by Mrs. Katherine M. Portch of Almira, Washington: “Let's apples eat and save the wheat.”

To the executives of the show must be given the principal credit for its success. These executives were headed by Jake Hill, a shoe merchant, who was president of the organization, and James A. Ford, secretary of the Chamber of Commerce, who was manager. Mr. Hill chose for his cabinet 35 of the leading business and professional men of the city, augmented by 31 of the best-known fruit men in the several apple-growing districts of the Northwest. All of these men gave of their time, money and work without recompense, and they did it so cheerfully and thoroughly that it set a new mark in the annals of the apple show.

The trustees from outside of Spokane were:

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Important Horticultural Meeting.

The fourteenth annual meeting of the Washington State Horticultural Association will be held at Kennewick January 3, 4 and 5, 1918. The work is to help the fruit grower. Come and spend these three days with us. It will be a tonic for your system. The following vital subjects are to be discussed: The labor problem; Transportation; Better marketing; Improving community packing houses; Air-cooled storage plants; Gathering fruit for flavor and color; Combatting the insects—best sprays to use; Better pruning—better fruit; Benefits of a cover crop; Abuses of water; Pollination of sweet cherries and Tragedy prunes; Irresponsible grower vs. irresponsible commission merchant; Magnitude of the fruit industry of Washington; Illustrated lecture on potato diseases; Colonization—Australia vs. America.

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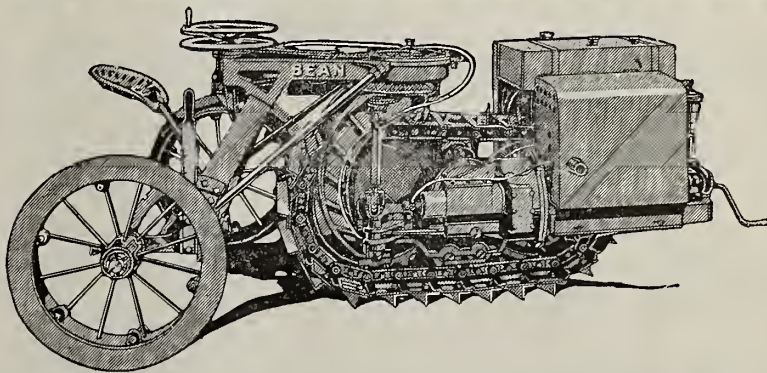
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Desires to get in touch with Fruit and Vegetable Growers in all parts of the country in order to establish Fruit and Vegetable Drying Plants for single firms that want to build new and up-to-date drying plants for themselves and with two or more growers that would favor to construct a drying plant on a co-operative base. There are many millions of dollars worth of Fruit and Vegetables to be left to rotten on the ground and many more millions of dollars are paid in freight rates, tin cans and boxes that can and must be saved. We will invest some of our own capital if you wish as we are sure that it is to our mutual benefit if you write us today for particulars. All information on this subject will be given cheerfully and free of charge. If you are in business for making the best profits write now.



A Masterpiece of Simplicity

with Patented Front-Drive

SEND the coupon below for our new catalog which describes the Bean TrackPULL Tractor—a masterpiece of simplicity, with patented front-drive which no other tractor has.

It is built by an old-established concern, the Bean Spray Pump Co., makers of the famous Bean Sprayers and Pumps.

A life-long reputation is staked on this tractor.

Note some of the things it does, then get the entire story.

Don't make the mistake of buying another type and then decide too late that you need the Bean. Think of a tractor that turns clear around inside a 10-foot circle (5-foot radius)—that weighs only 3100 pounds, but that will plow from 4 to 7 acres or cultivate from 10 to 15 acres in 10 hours.

Learn all about its 15 vital features. You'll want them all in your machine.

What Other Does These Things?

1. Pulls instead of pushes itself over the ground.
2. "Gees" and "haws" out of holes and soft places like a team.
3. Turns clear around inside 10-foot (5-foot radius) circle with full power on turns.
4. Cultivates as close up in corners as a team.
5. Goes under tree-branches only 4 feet off the ground.

There are 15 features. Read about the rest in the catalog we send you. Mail us the coupon now.

Bean Spray Pump Co.

613 W. Julian Street
San Jose, Cal.

Without any obligation on my part, send me Tractor Book.

BEAN TrackPULL Tractor

Price Now \$1215

F.O.B. San Jose, California

Name

Street.....

City..... County.....

State.....

No. of acres..... Kind of crops

Did You Ever

Stop To consider how congested and over-populated Europe feeds its hundreds of millions?

Look Into the reason for the heavy yield of the Hawaiian Sugar Plantations?

Listen To the successful rancher and farmer explain the source of his profits?

THE ANSWER IS

"Nitrate of Soda" with its 15% Nitrogen—equal to 18% Ammonia—immediately available.

"Nitrate of Soda" is imported from Chile; through lack of tonnage it is becoming increasingly difficult to secure;—place your orders for spring requirements NOW.

Literature upon request.

NITRATE AGENCIES CO.

Leary Building, Seattle, U. S. A.

Pacific Coast Agents
**United States Steel
Products Co.**

San Francisco
Los Angeles
Portland
Seattle



J.C. Pearson Co., Inc.
Sole Manufacturers

Old South Bldg.
Boston, Mass.

PEARSON

ECONOMY in buying is getting the best value for the money. not always in getting the lowest prices. PEARSON prices are right.

ADHESIVENESS or holding power is the reason for PEARSON nails. For twenty years they have been making boxes strong. Now, more than ever.

RELIABILITY behind the goods is added value. You can rely on our record of fulfillment of every contract and fair adjustment of every claim.

SATISFACTION is assured by our long experience in making nails to suit our customers' needs. We know what you want; we guarantee satisfaction.

ORIGINALITY plus experience always excels imitation. Imitation's highest hope is, to sometime (not now) equal Pearson—meantime you play safe.

NAILS

Hooverizing the Small Apple

As the crop of Northwestern box apples is being matured and harvested, it is realized that sizes will run much smaller than expected. This will result in a big shrinkage in the estimated number of boxes and cars, and actually means a greater shortage of apples than early figures indicated. When apple prices are relatively high every student of marketing knows that the retailers are inclined to shift to the smaller sizes. The reason is simple—the price per apple can be kept within the range of the pocket book of the common people. Every storage operator knows that the small-sized apples keep the longest in storage and shrewd operators are figuring this season that the best and safest buy will be the small-sized fruit. Prices of apples in general seem high, but sellers believe the prices are fully justified by the shortage existing not only in apples but in the California and Florida citrus crops, together with restricted importation of bananas.

The Northwestern Fruit Exchange is shaping its advertising campaign to the consumer through magazines, newspapers and other media, strongly stimulating the demand for the smaller-sized apples, which will probably be denominated as the economy apples for children, "School Apples," etc. Hooverizing the special advantages of the smaller apple in eliminating waste. Everybody knows that the average youngster's "eyes are bigger than his stomach." He naturally reaches for a big apple whether he is hungry or not, overestimating his capacity and perhaps half of the big apple may be wasted. The smaller apple is just his size and will be consumed without waste. This is a year, above all others, when "There ain't a-goin' to be no core" in efficient apple consumption.

Every lunch box of every school child should contain at least one apple every day. With this year's prices fairly well up on the larger sizes, many a housewife would hesitate to supply the kiddies with this fruit regularly, but the small apple solves the problem. Boxes of 175s and 225s, consisting of beautifully colored perfect specimens at an average low cost per apple, will solve the problem. With this special line of educational advertising directed to the consumer by the Exchange in its "Skookum" apple advertising, there is an added reason why the trade should realize the special values existing in the small sizes this year.—Produce News.

California Fruit Growers' Exchange

Following are related some interesting achievements by the California Fruit Growers' Exchange, which prove very conclusively the value of fruit growers' associations:

At the moment when the subject of farmers' co-operative associations again has come to the front because of unusual conditions and because of the necessity for economical marketing of agricultural products, the announce-

ment is made by the California Fruit Growers' Exchange that in the year closed August 31, 1917, it returned to citrus growers the enormous sum of \$33,611,000.

The California Fruit Growers' Exchange long has been recognized as the largest co-operative organization of farmers in the world, and has been the model held up to the agriculturists of America. Such authorities as Sir Horace Plunkett, Harbert Quick, Charles Holman and Charles McCarthy have made studies of its success and have sought to have its methods adapted to other localities.

According to the report for the year recently closed, the Exchange now markets 69 per cent of all oranges, lemons and grapefruit grown in California, a business which last year totaled 15,492,990 boxes of citrus fruit. This tremendous volume of fruit was marketed at a cost of 4¾ cents a box, and not a single penny was lost through bad debts or other causes. The annual report points out that in the last 14 years the business of the growers' organization has amounted to \$226,100,000, on which losses from bad debts and all other causes have been less than \$8,000, or 35/10,000ths of 1 per cent. The total California citrus crop of last season amounted to 53,830 carloads.

The Exchange is composed of 8,000 growers and acts as a clearing house for the bulk of the California crop. Growers pool their fruit, which is then graded in 150 packing houses, and, under the direction of the central office, is distributed through the organization's sales offices to all parts of the country. The service is performed at absolute cost.

The citrus industry has virtually been organized upon a manufacturing basis. For advertising in newspapers and other periodicals each box of oranges is assessed two and one-quarter cents and every box of lemons four cents. Last year this netted a fund of nearly half a million dollars for publicity work. According to the report, the growers look to advertising to increase the consumption of oranges and lemons and thereby make room for the rapidly-increasing crops. During the ten years in which advertising has been done, the consumption of citrus fruits has increased 80 per cent, or four times as rapidly as population.

The growers in the Exchange have their own mutual insurance compact. They operate a supply company which last year purchased for its members packing house and orchard supplies worth \$5,459,574. A large tract of timber land, with saw mills and lumbering equipment from which box wood is made, is owned and operated by the growers. In order to dispose of the unmerchantable lemons a by-products plant has been constructed which last year converted 6 per cent of the lower grades into citric acid and other by-products. The interests of the growers



Pittsburgh Perfect Cement Coated Nails are of the highest standard

The Heads don't come off. Given Preference by Largest Pacific Coast Packers

MANUFACTURED EXCLUSIVELY BY
PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.

A. C. RULOFSON COMPANY, Pacific Coast Agents
359 Monadnock Building, San Francisco, California

East Through California

When you go East via California you may visit San Francisco,
all the resorts along the Road of a Thousand Wonders,

Los Angeles and
Sunny Southern California,

The Apache Trail of Arizona.

Liberal stopovers are permitted at various points en route.

Four trains a day from Portland offer
ample accommodations.

Inquire at any S. P. agency, or address
John M. Scott, General Passenger Agent
Portland, Oregon

Southern Pacific Lines

Ridley, Houlding & Co.

COVENT GARDEN, LONDON

Points to remember when consigning
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Specialists in Apples

CABLE ADDRESS: BOTANIZING, LONDON

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HOOD RIVER, OREGON

Capital . . . \$100,000.00

4% Interest Paid in our
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THE OLDEST BANK IN HOOD RIVER VALLEY

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Unexcelled facilities for the production of Catalogues, Booklets, Stationery, Posters and Advertising Matter. Write us for prices and specifications. Out-of-town orders executed promptly and accurately. We print BETTER FRUIT.

CORNER FIRST AND OAK STREETS
PORTLAND, OREGON

are guarded by a traffic department, a legal department and other staffs of experts.

The crops of oranges and lemons last year were the largest ever shipped, and California provided 71 per cent of the lemons consumed in America. The balance were imported.

In order to provide an efficient marketing medium for California farmers, who have planted vegetables extensively in response to the requests of the government, the Exchange is temporarily opening its marketing facilities to vegetable shippers.

One Hundred Cars of Apples for Our Soldier Boys at the Front.

The International Apple Shippers' Association deserves the sincerest thanks of the public and every fruit grower for their wonderful appreciation of the service being rendered by our boys at the front by raising a fund with which to purchase one hundred cars of apples, which will cost approximately \$100,000. Every member of the International Apple Shippers' Association is being called on for a donation to this fund. Nothing is too good for our boys at the front. Everyone should contribute freely and generously for their comfort and welfare in every way possible. The campaign has just commenced, it already being reported that before the campaign even started Mr. Wayne M. French, as treasurer, commenced the list with \$500. Immediately subscriptions from members of the Association began to pour in at the rate of \$100 apiece.

The car shortage, which of course is more or less general, has delayed the movement of the Northwestern apple crop, the delay being more in the early part of the season than recently. On account of the shortage of refrigerator cars fruit shippers have been compelled to use box cars very extensively. Wenatchee has been shipping out trainloads of box cars and refrigerator cars combined, regularly using about 56 cars to the train, with a number of specials being sent in addition to the regular fruit trains. The Apple Growers' Association of Hood River has also shipped in trains, usually sending 25 cars at a time, using box cars quite extensively. Mr. Sam Campbell, who went East in charge of the first train from Hood River, reported the fruit arrived in excellent condition. The fruit was carefully watched all the way through and sufficient heat maintained by the use of Perfection oil heaters, so no damage from the cold weather. Unless a number of refrigerator cars are built during the coming year, with next year being a heavy crop, growers will have to use more box cars in the future than they have in the past.

Nice Bright Western Pine FRUIT BOXES AND CRATES

Good standard grades. Well made. Quick shipments. Carloads or less. Get our prices.

Western Pine Box Sales Co.
SPOKANE, WASH.

Hidden Pests Easily Conquered with **FRUIT-FOG** It Brings Amazing Yields From Ordinary Trees!!

HAYES FRUIT-FOG GUN

(Fully Patented)

Big success where time and speed is the important factor. One man handles full capacity of power sprayer. Combines convenience and labor saving with the wonderful thoroughness of **FRUIT-FOG**, the superfine high pressure spray.

One man does 4 days work in 1. Simple twist shoots long spray to top of trees or wide spray for close work. Half turn opens wide or shuts tight. Made of high grade brass. Mechanically perfect. Fully guaranteed.

\$12

Millions of dollars worth of fine fruit is destroyed annually by hidden pests and diseases. Some experts even claim that as much as 47% of the damage is done by those insects and diseases which infest the minute niches, cracks and crevices about the trees.

For years these dangerous *hidden* pests and diseases have laughed at your best efforts to reach them with coarse, heavy, low-pressure sprays. Thus they have caused a heavy loss *even in supposedly thoroughly sprayed orchards*.

The increased yields from Fruit-Fog Trees is due to the fact that this superfine, fog-like, high pressure spray absolutely stamps out *all hidden pests*. By this treatment many ordinary trees have been known to produce amazing yields. **FRUIT-FOG** is made from any standard solution by the high pressure of

HAYES FRUIT-FOG SPRAYERS

FRUIT-FOG easily filters into the most minute crevices of bark—works under bud scales—beneath fleshy stamens of apple blossoms. It seeks out the hidden pests, penetrates into the innermost sections of the foliage—gets at the bottom of the leaves as well as the top.

FRUIT-FOG literally envelopes everything—like the finest mist. It deposits a light film of solution—enough to exterminate all diseases

and insects, without injury to the foliage! **FRUIT-FOG** is so vapory that no drops form. No solution is wasted.

FRUIT-FOG uses much less solution than coarse, low-pressure sprays and is more economical. It is easily directed and quickly applied. This is very important when you only have a few days for spraying.

Guaranteed!!

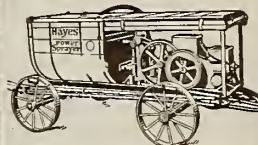
Hayes Power Sprayers are tested to 500 lbs. and are **GUARANTEED** to maintain 300 lbs. working pressure at their full rated capacity. These Sprayers are built for constant operation at high pressure and for enduring service. This requires not only thorough mechanical construction but finest materials and fittings. **HAYES HAND SPRAYERS** are built to give maximum pressure and capacity with minimum power to operate. The complete line contains more than

50 Styles

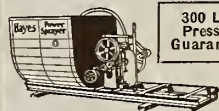
We manufacture large and small Hand and Power Sprayers for orchards, field crops, shade trees, hops, poultry, disinfecting, painting, whitewashing, farm, home and garden use. Complete outfits or separate spray pumps, hose, nozzles, fittings, bamboo rods, etc.

A Few of Our Famous

FRUIT-FOG SPRAYERS



Large Power
Sprayers



300 Lbs.
Pressure
Guaranteed

Outfits
Less Engine



Large
Hand
Sprayers



Barrel
Sprayers



Nozzles and
Fittings

Successful
Spraying
With a spray of
FRUIT-FOG

This Spraying Manual FREE! →

Tells all about spraying—how to spray; when to spray; what solution to use for different pests and diseases—and in different seasons. Now being used by thousands of growers and prominent agricultural colleges. We will mail you a copy free of charge, with our beautiful 68-page catalog on Hayes **FRUIT-FOG** Sprayers, upon receipt of the coupon **FRUIT-FOG** and this Spraying Guide are a big crop combination that can't be beaten. MAIL COUPON TODAY.

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Specialists on Spraying and Spray Apparatus
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Dept. K, Galva, Illinois.

Gentlemen: Please send me Free
Spraying Guide and complete catalog
of Hayes Sprayers. I am interested in—

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☐ Large Power Sprayer ☐ Small Power Sprayer
☐ Nozzle and Fittings

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A MESSAGE

In conformity with the suggestion and at the request of the National
Food Administration under the direction of

MR. HERBERT C. HOOVER

ASSISTED BY

Messrs. G. Harold Powell and E. W. J. Hearty

IN THE FRUIT DIVISION

Steinhardt & Kelly **NEW YORK**

desire to advise the trade in general, and their out-of-town customers in particular, that their entire holdings of purchased apples and other fruits, will, during the duration of this war, be only sold within the limits of the Metropolitan district for consumption and use by the people of Greater New York.

Under no circumstances will we allow any of our salesmen to sell to speculators, our sincere intention being to get as close to the actual consumer as legitimate business tactics will permit.

Being unquestionably the largest holders of box apples in the country, it will be our earnest endeavor to keep prices on an even, equitable basis of values and we will permit no manipulation of our holdings that might tend to create abnormal prices.

To prove our sincerity at this critical time in our country's history, we will not, during the war, allow a single car of our holdings, no matter where stored, to be diverted from New York to other markets for speculative purposes.

The pyramiding of prices as practiced in some industries at this time is a crime against the nation of which we trust no firm in the fruit and produce trade will be guilty.

We feel certain that our stand in this matter will result in stabilizing values, thereby bringing fruits, which are so necessary and healthful, to consumers at a fair and reasonable price.

Steinhardt & Kelly **NEW YORK**